

MAIL TO:

STATE OF UTAH
 DIVISION OF PURCHASING
 3150 STATE OFFICE BUILDING, CAPITOL HILL
 P.O. BOX 141061
 SALT LAKE CITY, UTAH 84114-1061
 TELEPHONE (801) 538-3026
 FAX (801) 538-3882
<http://purchasing.utah.gov>

Request for QuotationSolicitation Number: **NO5531**Due Date: **11/09/04 at 3:00 P.M.**

Date Sent: October 19, 2004

**Agency Contract**

Goods and services to be
 purchased:

**REQUEST FOR STATEMENTS OF INTEREST TO PROVIDE QUALIFIED PROFESSIONAL ENGINEERING
 SERVICES FOR THE DEPARTMENT OF NATURAL RESOURCES**

Please complete

Company Name		Federal Tax Identification Number	
Ordering Address	City	State	Zip Code
Remittance Address (if different from ordering address)	City	State	Zip Code
Type <input type="checkbox"/> Corporation <input type="checkbox"/> Partnership <input type="checkbox"/> Proprietorship <input type="checkbox"/> Government	Company Contact Person		
Telephone Number (include area code)	Fax Number (include area code)		
Company's Internet Web Address	Email Address		
Discount Terms (for bid purposes, bid discounts less than 30 days will not be considered)	Days Required for Delivery After Receipt of Order (see attached for any required minimums)		
<p>The following documents are included in this solicitation: Solicitation forms, instructions and general provisions, and specifications. <u>Please review all documents carefully before completing.</u></p> <p>The undersigned certifies that the goods or services offered are produced, mined, grown, manufactured, or performed in Utah. Yes_____ No_____. If no, enter where produced, etc._____</p>			
Offeror's Authorized Representative's Signature		Date	
Type or Print Name		Position or Title	

**STATE OF UTAH
DIVISION OF PURCHASING**

Request for Quotation

Solicitation Number: NO5531

Due Date: 11/09/04

Vendor Name:

DESCRIPTION

REQUEST FOR STATEMENTS OF INTEREST RESULTING IN AN AGENCY CONTRACT TO PROVIDE QUALIFIED PROFESSIONAL ENGINEERING SERVICES TO THE UTAH DIVISION OF OIL, GAS AND MINING, ABANDONED MINE RECLAMATION PROGRAM. THE WORK REQUIRES INVENTORY AND CULTURAL EVALUATION OF TWO ABANDONED MINE PROJECT AREAS WITH RESPECT TO PUBLIC SAFETY HAZARDS AND DESIGN OF RECLAMATION TO MITIGATE HAZARDS. DETAILS OF THE WORK ARE CONTAINED IN THE ATTACHED SPECIFICATIONS TITLED: REQUEST FOR STATEMENTS OF INTEREST: RECLAMATION ENGINEERING AND DESIGN FOR THE KESSLER AND NORTH TINTIC PROJECTS.

WITH TECHNICAL QUESTIONS OR FOR MORE CLARIFICATION PLEASE CONTACT AMBER FORTNER AT 801-538-5437.

WITH PURCHASING QUESTIONS OR FOR CLARIFICATION PLEASE CONTACT NANCY ORTON AT 801-538-3148.

REFERENCE RX: 560 52000000004; COMMODITY CODE(S): 92586000000, 92517000000, 96155000000

REQUEST FOR QUOTATION

1. QUOTATION PREPARATION: (a) All prices and notations must be in ink or typewritten. (b) Price each item separately. Unit price shall be shown and a total price shall be entered for each item bid. Errors may be crossed out and corrections printed in ink or typewritten adjacent and must be initialed in ink by person signing quotation. (c) Unit price will govern, if there is an error in the extension. (d) Delivery time is critical and must be adhered to as specified. (e) Wherever in this document an item is defined by using a trade name of a manufacturer and/or model number, it is intended that the words, "or equivalent" apply. "Or equivalent" means any other brand that is equal in use, quality, economy and performance to the brand listed as determined by the Division of Purchasing & General Services (DIVISION). If the vendor lists a trade name and/or catalog number in the bid, the DIVISION will assume the item meets the specifications unless the quote clearly states it is an alternate, and describes specifically how it differs from the item specified. All quotes must include complete manufacturer's descriptive literature if quoting an equivalent product. All products are to be of new, unused condition, unless otherwise requested in this solicitation. (f) By signing the quotation the vendor certifies that all of the information provided is accurate, that they are willing and able to furnish the item(s) specified, and that prices quoted are correct. (g) This quote may not be withdrawn for a period of 60 days from quote due date. (h) Incomplete quotes may be rejected.

2. SUBMITTING THE QUOTATION: (a) The quote must be signed in ink and returned to the DIVISION OF PURCHASING, 3150 State Office Building, Capitol Hill, Salt Lake City, UT 84114-1061 or faxed to (801) 538-3882 by the due date and time. **The "Solicitation Number" and "Due Date" must appear on the outside of the envelope or on the fax cover page.** (b) The state will consider faxed quotes. Faxed quotes are submitted at the sole option and risk of the vendor and must be responsive to all conditions and specifications included in the Request for Quotation (RFQ). Access to state facsimile machine is on a "first come first served" basis and the state does not guarantee the vendor's access to the machine at any particular time. (c) All prices quoted must be both F.O.B. Origin and F.O.B. Destination. Additional charges including but not limited to delivery, drayage, express, parcel post, packing, cartage, insurance, license fees, permits, costs of bonds, or for any other purpose must be included in the quotation for consideration and approval by the DIVISION. Upon award of the contract, the shipping terms will be F.O.B. Destination, Freight Prepaid with freight charges to be added to the invoice unless otherwise specified by the DIVISION.

3. SOLICITATION AMENDMENTS: All changes to this solicitation will be made through written addendum only. Bidders are cautioned not to consider verbal modifications.

4. PROPRIETARY INFORMATION: Suppliers are required to mark any specific information contained in their quote which is not to be disclosed to the public or used for purposes other than the evaluation of the quote. Each request for non-disclosure must be accompanied by a specific justification explaining why the information is to be protected. Pricing and service elements of any quote will not be considered proprietary. All material becomes the property of the state and may be returned only at the state's option. Quotes submitted may be reviewed and evaluated by any persons at the discretion of the state.

5. SAMPLES: Samples of item(s) specified in the RFQ, when required by DIVISION, must be furnished free of charge to DIVISION. Any items not destroyed by tests may, upon request made at the time the sample is furnished, be returned at the vendor's expense.

6. WARRANTY: The contractor agrees to warrant and assume responsibility for all products (including hardware, firmware, and/or software products) that it licenses, contracts, or sells to the State of Utah under this contract for a period of one year, unless otherwise specified and mutually agreed upon elsewhere in this contract. The contractor (seller) acknowledges that all warranties granted to the buyer by the Uniform Commercial Code of the State of Utah applies to this contract. Product liability disclaimers and/or warranty disclaimers from the seller are not applicable to this contract unless otherwise specified and mutually agreed upon elsewhere in this contract. In general, the contractor warrants that: (1) the product will do what the salesperson said it would do, (2) the product will live up to all specific claims that the manufacturer makes in their advertisements, (3) the product will be suitable for the ordinary purposes for which such product is

INSTRUCTIONS AND GENERAL PROVISIONS

used, (4) the product will be suitable for any special purposes that the State has relied on the contractor's skill or judgement to consider when it advised the State about the product, (5) the product has been properly designed and manufactured, and (6) the product is free of significant defects or unusual problems about which the State has not been warned. Remedies available to the State include the following: The contractor will repair or replace (at no charge to the State) the product whose nonconformance is discovered and made known to the contractor in writing. If the repaired and/or replaced product proves to be inadequate, or fails of its essential purpose, the contractor will refund the full amount of any payments that have been made. Nothing in this warranty will be construed to limit any rights or remedies the State of Utah may otherwise have under this contract.

7. DIVISION APPROVAL: Purchase Orders placed, or contracts written, with the State of Utah, as a result of this RFQ, will not be legally binding without the appropriate signature of the DIVISION.

8. AWARD OF CONTRACT: (a) **This is an informal quotation which will not be read at a public opening;** however, the information may be publicly reviewed after award. To obtain a copy of this record (tabulation) you may either enclose a stamped self-addressed envelope, or review tabulation in our office. (b) The contract will be awarded with reasonable promptness, by written notice to the lowest responsible vendor that meets the specifications. Consideration will be given to the quality of the product(s) to be supplied, conformity to the specifications, the purpose for which required, delivery time required, discount terms and other criteria set forth in this request for quotation. (c) The DIVISION may accept any item or group of items, or overall low quote. (d) The DIVISION has the right to cancel this request for quotation at any time prior to the award of contract. (e) The DIVISION can reject any and all quotes or waive any informality, or technicality in any quote received, if the DIVISION believes it would serve the best interest of the State. (f) Before, or after, the award of a contract the DIVISION has the right to inspect the vendor's premises and all business records to determine the holder's ability to meet contract requirements. (g) Estimated quantities are for quoting purposes only, and not to be interpreted as a guarantee to purchase any amount. (h) Utah has a reciprocal preference law which will be applied against vendors quoting products or services produced in states which discriminate against Utah products. For details see Section 63-56 20.5 -20.6, Utah Code Annotated. (i) Multiple contracts may be awarded if the State determines it would be in its best interest.

9. ANTI-DISCRIMINATION ACT: The vendor agrees to abide by the provisions of the Utah Anti-discrimination Act, Title 34 Chapter 35, U.C.A. 1953, as amended, and Title VI and Title VII of the Civil Rights Act of 1964 (42 USC 2000e), which prohibit discrimination against any employee or applicant for employment, or any applicant or recipient of services, on the basis of race, religion, color, or national origin; and further agrees to abide by Executive Order No. 11246, as amended, which prohibits discrimination on the basis of sex; 45 CFR 90 which prohibits discrimination on the basis of age, and Section 504 of the Rehabilitation Act of 1973, or the Americans with Disabilities Act of 1990, which prohibits discrimination on the basis of disabilities. Also vendor agrees to abide by Utah's Executive Order, dated March 17, 1993, which prohibits sexual harassment in the workplace. Vendor must include this provision in every subcontract or purchase order relating to purchases by the State of Utah to insure that the subcontractors and vendors are bound by this provision.

10. DEBARMENT: The CONTRACTOR certifies that neither it nor its principals are presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from participation in this transaction (contract) by any governmental department or agency. If the CONTRACTOR cannot certify this statement, attach a written explanation for review by the STATE.

11. GOVERNING LAWS AND REGULATIONS: All state purchases are subject to the Utah Procurement Code, Title 63 Chapter 56 U.C.A. 1953, as amended, and the Procurement Regulations as adopted by the Utah State Procurement Policy Board. These are available on the Internet at www.purchasing.utah.gov

(Revision 14 Mar 2003 - RFQ Instructions)

REQUEST FOR STATEMENTS OF INTEREST

Solicitation Number NO5531

For

Abandoned Mine Reclamation Program Reclamation Engineering and Design

2004 Projects: Kessler Project and North Tintic Project

PURPOSE

The purpose of this Request for Statements of Interest (REQUEST) is to procure qualified professional engineering services for the Utah Division of Oil, Gas and Mining, Abandoned Mine Reclamation Program, hereafter referred to as OWNER. The services include inventory of abandoned mine project areas, a cultural historic survey and report, an evaluation of the associated public safety hazards, and reclamation designs to mitigate those hazards. A firm submitting an SOI will hereafter be referred to as OFFEROR.

This REQUEST solicits engineering services for two separate PROJECTS: Kessler Project and North Tintic Project. OFFEROR may choose to be considered for either or both of the PROJECTS. OFFEROR must specify which PROJECT(S) they wish to be evaluated for. OFFEROR should request consideration for **only** the PROJECT(S) they have the capacity to complete before the deadline. Deadline for all deliverables for the PROJECT(S) is October 30, 2005.

All work shall be performed by or under the direct supervision of a professional engineer (PE) registered in the State of Utah with a PE license in civil or mining engineering. The archaeologist on the team must possess a blanket survey permit from both the Utah Division of State History and the Utah Bureau of Land Management (see section C.9).

OWNER will evaluate and rank each Statement of Interest (SOI) based on the evaluation criteria outlined in this REQUEST. OWNER will negotiate a contract with OFFEROR submitting the highest-ranking SOI. The contract is subject to approval of the Utah Division of Purchasing and the Utah Division of Finance, and is not binding on OWNER or the successful OFFEROR until such approval is obtained. Upon contract approval the successful OFFEROR will be referred to as CONSULTANT.

This REQUEST differs from OWNER's previous solicitations for abandoned mine inventory and engineering in the addition of the cultural survey component. OWNER has customarily performed cultural surveys separately after the completion of the inventory. It is OWNER's hope that combining these two tasks into a single operation will result in more efficient use of field time, fewer revisions to closure recommendations to protect cultural resources, and a streamlined National Historic Preservation Act (NHPA) Section 106 compliance process. The OWNER encourages the OFFEROR to consult with the OWNER regarding how to accomplish the cultural portion of the WORK. The OWNER's archaeological consultant is available to discuss the cultural resource component with the OFFEROR.

For OFFERORs who have previously performed work on an OWNER project, a performance rating of ten points or more is required in order to be considered for subsequent projects. Beginning with contracts awarded in 1999, all CONSULTANTs are evaluated using the Consultant Performance Rating Form (see Attachment B.5 and APPENDIX A).

This work is funded through the U.S. Office of Surface Mining and the State of Utah. Award of contract and authorization to perform the work are subject to the availability of funds.

ADMINISTRATIVE GUIDANCE

The information provided here is designed to provide OFFERORs with sufficient information to prepare a proposal that meets the minimum requirements necessary to properly respond to this REQUEST. It is not intended to limit the content or exclude any relevant or essential data from OFFEROR's SOI. OFFERORs are encouraged to improve and/or update OWNER's suggested methods for inventory and reclamation design.

RESPONSE DATE

Three (3) copies of the SOI must be received by the **Utah Division of Purchasing** prior to the closing date and time specified. Any SOI en route, either in the mail or in other locations in the State Office Building, will not be considered timely. SOIs received after the deadline will be late and ineligible for consideration. SOIs must be delivered in envelopes with the Solicitation Number clearly written on the outside. The address for submissions is:

Division of Purchasing
3150 State Office Building
Capitol Hill
Salt Lake City, Utah 84114
Attention: UAMRP Statement of Interest
Solicitation Number NO5531

SOIs will be received until 3:00 p.m. on **Tuesday, November 9, 2004** at the **Division of Purchasing only. Do not deliver SOIs to OWNER.**

ISSUING OFFICE AND REFERENCE NUMBER

The Utah Division of Purchasing is the issuing office for this REQUEST and all subsequent addenda relating to it. The reference number for this REQUEST must be referred to on all SOIs, correspondence, and documentation relating to this REQUEST.

The reference number for this REQUEST is Solicitation Number NO5531.

SOI PREPARATION INSTRUCTIONS

SOIs should contain the information required and be organized as described below. SOIs in nonstandard formats will not be evaluated. Pertinent supplemental information should be referenced and included as attachments.

The SOI should be formatted using these headings:

COVER SHEET
INVESTIGATION AND FIELD INVENTORY
LAND OWNERSHIP RESEARCH
ENGINEERING AND DESIGN
CULTURAL/HISTORIC SURVEY AND REPORTS
SCHEDULE AND STAFF ASSIGNMENTS
ALTERNATIVES
EXAMPLES OF PREVIOUS WORK

COVER SHEET:

Include the project name(s), solicitation number, the name of OFFEROR, including address, telephone number, FAX number (if available), email address (if available), and the name of the person to be contacted in connection with this SOI.

INVESTIGATION AND FIELD INVENTORY
LAND OWNERSHIP RESEARCH
ENGINEERING AND DESIGN
CULTURAL/HISTORIC SURVEY AND REPORTS:

For each of these four sections, include a general but complete narrative overview of OFFEROR's assessment of the work to be performed and their ability to perform the work. Each section should clearly demonstrate OFFEROR's understanding of the desired product and how they can provide that product. OFFERORs must show that they understand the scope and importance of each individual task. A mere repetition of the tasks taken from OWNER's scope of work will not be considered responsive to the Request for SOIs.

The SOI should describe or list previous work that demonstrates the firm's ability to perform the work discussed under each of the five headings. Emphasis should be placed on previous work most closely related to that required by this REQUEST. The description should be sufficient to show OFFEROR's experience and qualifications. Resumes or synopses of qualifications and experience of the firm and key personnel may be included in this

section. Limit resumes to those people to be assigned to the project. It is not necessary to reproduce lengthy *curricula vitae* or project lists if they will not aid in evaluation of the SOI.

TIME SCHEDULE AND STAFF ASSIGNMENTS:

The SOI should contain the proposed project schedule. Show, in bar chart form, the major activities required to do the work. Also summarize the firm's expertise by listing the personnel to be assigned, their functions in the project, their labor categories, and their time allocations.

ALTERNATIVES:

This section contains suggestions the firm has to improve OWNER's system of inventory and data collection. OFFERORs are encouraged to improve and update the methods and recommend improvements.

EXAMPLES OF PREVIOUS WORK:

This section contains examples of previous work that are relevant and will aid in the evaluation of the ability of OFFEROR to perform the work outlined in this REQUEST. It is not necessary to reproduce lengthy project lists if those projects are not pertinent to the work outlined in this REQUEST.

SOI EVALUATION

OWNER's Ranking Committee will review, evaluate, and rank all SOIs using the criteria below with assigned weights as indicated (see the SOI evaluation score sheet on page 6). Each of the evaluation criteria must be addressed in the SOI. Each criterion will be given a score ranging from zero to five with five being the highest score possible. Each score will then be multiplied by the appropriate weighting factor to determine the total number of points earned.

Rating points will be assigned as follows:

0 = No response, no experience; not qualified

1 = Minimal experience; qualified

3 = Moderate experience; well qualified

5 = Extensive experience; highly qualified

The middle column of the evaluation score sheet lists weight factors. The weight assigned to a particular criterion in this column reflects the relative importance of that criterion. The column on the right will be used to record the total number of points (score times weight) earned for each criterion. The points will then be summed and total evaluation points will be used to rank OFFEROR's qualifications.

Evaluation Criteria:

Contract Terms: (qualifying/disqualifying)

Firm is able to meet the terms and requirements of the contract.

1. Quality and Suitability of SOI: (5%) (25 points possible)

Package is clear, concise, and responsive. (weight = 5)

2. Investigation and Field Inventory: (30%) (160 points possible)

a. Package shows an understanding of the goals of OWNER. (weight = 8)

b. Package shows a sound overall understanding of the scope of work. Shows a working familiarity with a variety of abandoned mine closure technologies with knowledge of the limitations and advantages of each. Shows the ability to recognize wildlife use, including bats, of a mine opening. Exhibits an understanding of cultural resource, legal concerns/needs and their technical ramifications. (weight = 8)

c. Technical approach to investigation and field inventory as defined in the scope of work shows a sound understanding of the needs of OWNER and the nature of the project area. (weight = 8)

d. Direct experience and expertise with non-coal abandoned mine inventory and site investigation is similar to that described in the scope of work. Skill is evident in the use of GPS (global positioning system) equipment and software to locate and map abandoned mine openings. (weight = 8)

3. Land Ownership Research: (12%) (60 points possible)
 - a. Ability to research and accurately determine surface and mineral ownership of each site, both patented and unpatented claims, is demonstrated. (weight = 3)
 - b. Technical approach to landowner research as defined in the scope of work evidences a sound understanding of the needs of the OWNER and the nature of the project area. (weight = 4)
 - c. Direct experience and expertise in land ownership and records research, particularly with mineral claim records, is demonstrated. (weight = 5)
4. Engineering and Design: (19%) (100 points possible)
 - a. Technical approach to engineering and design work as defined in the scope of work evidences a sound understanding of the needs of OWNER and the nature of the project area. (weight = 10)
 - b. Direct experience and expertise in design and engineering of abandoned mine reclamation projects, particularly shaft and adit closures, is shown. (weight = 10)
5. Cultural/Historic Survey and Reports (19%) (100 points possible)
 - a. Package shows an understanding of the National Historic Preservation Act (NHPA) Section 106 process as it applies to abandoned mine reclamation in Utah. (weight = 9)
 - b. Technical approach to cultural inventory and survey work demonstrates an efficient, seamless and accurate use of data collected in Item 2 above. (weight = 4)
 - c. Archaeologist has past experience or demonstrated ability to work satisfactorily with the Utah State Historic Preservation officer (SHPO) and federal land management agency archaeologists. (weight = 7)
6. Time Schedule and Staff Assignments: (5%) (25 points possible)

The allocation of time, personnel, and resources is appropriate to achieve the goals of the work in the time available. (weight = 5)
7. Alternatives: (5%) (25 points possible)

Proposal suggests alternative approaches that save time or money and exhibits a capacity for innovative or creative problem solving. (weight = 5)
8. Examples of Previous Work: (5%) (25 points possible)

Samples are provided of products from previous mine inventory/closure design work, such as inventory forms, specifications, design drawings, maps, etc. and including cultural evaluation. Samples show capability to perform required work at the highest quality level. Product quality and media are compatible with OWNER's needs and hardware and software capabilities. (weight = 5)

COST PROPOSAL NOT REQUESTED

Please note that cost estimates for the WORK are not being requested as part of this REQUEST according to current state regulations. Cost data should *not* be submitted as part of any SOI. Formal negotiations with the successful OFFEROR will include resolution of a negotiated contract price and any pertinent cost estimates for the WORK.

CONSIDERATION OF STATEMENTS OF INTEREST

The State of Utah may select a successful OFFEROR based solely on the initial SOI, without any discussion of such SOI. Accordingly, each initial SOI should be submitted from the most favorable services standpoint. OWNER reserves the right to reject any and all SOIs received.

SAMPLE CONTRACT

The successful OFFEROR will negotiate and enter a contract agreement with the Utah Division of Oil, Gas and

Mining. The contract agreement will be on a form similar to the agency contract attached as part of this REQUEST on page 8. In order for OFFEROR's SOI to qualify for evaluation, OFFEROR must be able to meet all requirements of this contract.

TERM OF CONTRACT

Notice to Proceed with the project will be issued immediately upon the award and execution of the contract. The contract will be for a period of three years with an option to renew for an additional one year at OWNER's discretion and by mutual agreement.

ADDITIONAL INFORMATION

Technical questions about the project should be directed to the project manager at the Division of Oil, Gas and Mining. Questions about proposal and procurement procedures should be directed to the Division of Purchasing. Contact people are:

Proposal:

Nancy Orton, Purchasing Agent
Division of Purchasing
3150 State Office Building
Salt lake City, Utah 84114
(801) 538-3150
(801) 538-3882 fax
nancyo@utah.gov

Technical questions:

Amber Fortner, Reclamation Specialist
Division of Oil, Gas and Mining
1594 West North Temple, Suite 1210
Salt Lake City, Utah 84114
(801) 538-5437
(801) 359-3940 fax
amberfortner@utah.gov

Deliver SOI to the Division of Purchasing only.

SOI EVALUATION SCORESHEET

Consultant: _____

Evaluator: _____

Date: _____

	<u>SCORE</u> (0-5)	<u>WEIGHT</u>	<u>POINTS</u>
1. QUALITY AND SUITABILITY OF SOI (25 points possible)	_____	x 5	_____
2. INVESTIGATION AND FIELD INVENTORY (160 points possible)			
a. Understanding OWNER's goals	_____	x 8	_____
b. Understanding scope of work	_____	x 8	_____
c. Technical approach to investigation and field inventory	_____	x 8	_____
d. Direct experience and expertise	_____	x 8	_____
3. LAND OWNERSHIP RESEARCH (60 points possible)			
a. Ability to research land ownership	_____	x 3	_____
b. Technical approach to landowner research	_____	x 4	_____
c. Direct experience and expertise	_____	x 5	_____
4. ENGINEERING AND DESIGN (100 points possible)			
a. Technical approach to engineering and design	_____	x 10	_____
b. Direct experience and expertise	_____	x 10	_____
5. CULTURAL/HISTORIC INVENTORY, SURVEY (100 Points possible)			
a. Understanding of the NHPA Section 106 process and the OWNER's intent.	_____	x 9	_____
b. Technical approach to cultural inventory and survey.	_____	x 4	_____
c. Demonstrated ability to work satisfactorily with SHPO and Federal archaeologists.	_____	x 7	_____
6. TIME SCHEDULE AND STAFF ASSIGNMENTS (25 points possible)	_____	x 5	_____
7. ALTERNATIVES (25 points possible)	_____	x 5	_____
8. PRODUCT CAPABILITY AND QUALITY (25 points possible)	_____	x 5	_____
TOTAL EVALUATION POINTS (520 points possible)			_____

APPLICANT/VIOLATOR SYSTEM ELIGIBILITY CHECK

Federal regulations (30 CFR 874.16) effective July 1, 1994, require all successful OFFERORs on contracts funded through Title IV of SMCRA to be eligible under 30 CFR 773.15(b)(1) to receive a permit to conduct surface coal mining operations. In general, this means that the Utah Abandoned Mine Reclamation Program may not hire CONSULTANT who is or whose company is associated with a coal mine operator with outstanding unabated violations under SMCRA. The regulations further require that OFFEROR eligibility be confirmed by the Applicant/Violator System (AVS) at the U.S. Office of Surface Mining (OSM). Compliance checks are also required for all subcontractors receiving 10% or more of the total contract amount.

To comply with these rules, OFFERORs must provide the Division of Oil, Gas and Mining with information on ownership and control of the contractor's firm for AVS review. An OFFEROR must receive a recommendation of "Issue" or "Conditional Issue" from the OSM AVS office to be awarded the contract.

The two most qualified OFFERORs shall submit to OWNER, when requested, a copy of the "AML Contractor Information Form". The OWNER will provide forms for this submission. OWNER will submit ownership and control information to OSM for AVS review. OSM's review will be completed within 72 hours if ownership and control data entry is complete.

OFFERORs may choose to submit the required information prior to submitting the proposal in order to facilitate data entry by OSM and expedite the AVS review and contract award process. Forms may be obtained from OWNER.

The following information is required for the "AML Contractor Information Form":

- Contractor's identity (name, address, telephone, Social Security number, Taxpayer ID number).
- Contractor's legal structure (sole proprietorship, partnership, corporation).
- Identities (name, address, telephone number, position/title) of every officer, general partner, shareholder (10% voting stock), director, or other controlling entity.
- Identities of parties with the authority to commit the assets of the firm.
- Identities of other relationships that give direct or indirect authority over the execution of the work.
- All of the above information for any subcontractor with 10% or more of the contract amount.

STATE OF UTAH CONTRACT

1. CONTRACTING PARTIES: This contract is between the following agency of the State of Utah:

Department of Natural Resources 560 Division of Oil, Gas and Mining, referred to as OWNER, and the
Agency Name Agency Code Division

following CONSULTANT:

Name _____

Address _____

City _____ State _____ Zip _____

Contact Person _____

Phone _____

LEGAL STATUS OF CONSULTANT

- ☐ Sole Proprietor
- ☐ Non-Profit Corporation
- ☐ For-Profit Corporation
- ☐ Partnership
- ☐ Government Agency

Federal Tax ID# _____

Vendor # _____

Commodity Code # _____

FINET Coding Block: Kessler Engineering Contract AMR/045/916/EC

Fund	Agency	Org	Approp Unit	Expend Object	Grant Category	Project or Job
100	560	2881	REG		GSP4	NA 143 01 G
100	560	2881	REG		GSP4	NA 144 01 G

2. GENERAL PURPOSE OF CONTRACT: The general purpose of this agreement is to:

Provide professional engineering expertise in evaluating an abandoned mine project area for reclamation known as the Kessler Project. The work includes conducting an inventory and investigation of mining features, designing reclamation, and preparing cultural report. The details of the Scope of Work are included in Attachment C, which is attached hereto and incorporated as part of this contract.

3. PROCUREMENT: This contract is entered into in compliance with the *State of Utah Procurement Rules* and as a result of the Division of Purchasing procurement process on Bid Number NO5531, Requisition Number 560 52000000004.

4. CONTRACT PERIOD: This contract is effective _____ and will terminate on _____ unless otherwise extended or terminated in accordance with the Terms and Conditions of the contract. This contract may be renewed for 1 additional 1 year term(s) at the option of OWNER.

5. CONTRACT COST: CONSULTANT will be paid by OWNER an amount not to exceed \$220,000, for costs authorized by this contract. OWNER shall withhold from payment an amount not to exceed 10% of the total cost of service for the WORK until all services and products pursuant to the Agreement are delivered and completed by CONSULTANT and OWNER has accepted and approved said products and services.

6. ATTACHMENTS INCLUDED AS PART OF THIS CONTRACT:

- Attachment A: Standard Terms and Conditions
- Attachment B: Special Terms and Conditions
- Attachment C: Scope of Work
- Attachment D: Deliverables Schedule
- Attachment E: Cost Schedule
- Attachment F: Time Schedule
- Attachment G: Services and Facilities Provided by Owner
- Attachment H: Amendments to the Agreement

Attachment I: Kessler Project Specific Information and Location Map
Attachment J: North Tintic Project Specific Information and Location Map

Appendix A: Consultant Performance Rating Form
Appendix B: Sample Inventory Forms and IMACS forms
Appendix C: Project Summary and Code Definitions
Appendix D: Shapefile Definitions
Appendix E: Directory Structure

Any conflicts between Attachment A and other Attachments will be resolved in favor of Attachment A.

7. DOCUMENTS INCORPORATED INTO THIS CONTRACT BY REFERENCE BUT NOT ATTACHED:
- a. All other governmental laws, regulations, or actions applicable to services authorized by this contract.
 - b. Division of Oil, Gas and Mining General Conditions for Abandoned Mine Reclamation Projects.
 - c. Statement of Interest to Inventory and Evaluate Abandoned Mine Features in the Oquirrh Mountains north and north east of Tooele, in Tooele County Utah, as presented by CONSULTANT in response to OWNER's request for Statements of Interest for Kessler Project, Reclamation Engineering and Design, Requisition Number 560 52000000004, Bid Number NO5531.

IN WITNESS WHEREOF, the parties sign and cause this contract to be executed.

Dated this ____ day of _____, 2004.

CONSULTANT

OWNER

STATE OF UTAH
DEPARTMENT OF NATURAL RESOURCES
DIVISION OF OIL, GAS AND MINING

Mark R. Mesch, Administrator
Abandoned Mine Reclamation Program

Corporation Secretary or Witness

Lowell P. Braxton, Director
Division of Oil, Gas & Mining

APPROVED FOR AVAILABILITY OF FUNDS:

Carl Roberts
Budget/Accounting, Divn of Oil, Gas & Mining

Douglas G. Richins
Director, Division of Purchasing

Kim S. Thorne
Director, Division of Finance

ATTACHMENT A: STANDARD TERMS AND CONDITIONS

1. **AUTHORITY:** Provisions of this contract are pursuant to the authority set forth in 63-56, Utah Code Annotated, 1953, as amended, Utah State Procurement Rules (Utah Administrative Code Section R33), and related statutes which permit the State to purchase certain specified services, and other approved purchases for the State.
2. **CONTRACT JURISDICTION, CHOICE OF LAW, AND VENUE:** The provisions of this contract shall be governed by the laws of the State of Utah. The parties will submit to the jurisdiction of the courts of the State of Utah for any dispute arising out of this Contract or the breach thereof. Venue shall be in Salt Lake City, in the Third Judicial District Court for Salt Lake County.
3. **LAWS AND REGULATIONS:** Any and all supplies, services and equipment furnished will comply fully with all applicable Federal and State laws and regulations.
4. **RECORDS ADMINISTRATION:** The Contractor shall maintain, or supervise the maintenance of all records necessary to properly account for the payments made to the Contractor for costs authorized by this contract. These records shall be retained by the Contractor for at least four years after the contract terminates, or until all audits initiated within the four years, have been completed, whichever is later. The Contractor agrees to allow State and Federal auditors, and State Agency Staff, access to all the records to this contract, for audit and inspection, and monitoring of services. Such access will be during normal business hours, or by appointment.
5. **CONFLICT OF INTEREST:** Contractor represents that none of its officers or employees are officers or employees of the State of Utah, unless disclosure has been made in accordance with 67-16-8, Utah Code Annotated, 1953, as amended.
6. **CONTRACTOR, AN INDEPENDENT CONTRACTOR:** The Contractor shall be an independent contractor, and as such, shall have no authorization, express or implied, to bind the State to any agreements, settlements, liability, or understanding whatsoever, and agrees not to perform any acts as agent for the State, except as herein expressly set forth. Compensation stated herein shall be the total amount payable to the Contractor by the State. The Contractor shall be responsible for the payment of all income tax and social security amounts due as a result of payments received from the State for these contract services. Persons employed by the State and acting under the direction of the State shall not be deemed to be employees or agents of the Contractor.
7. **INDEMNITY CLAUSE:** The Contractor agrees to indemnify, save harmless, and release the STATE OF UTAH, and all its officers, agents, volunteers, and employees from and against any and all loss, damages, injury, liability, suits, and proceedings arising out of the performance of this contract which are caused in whole or in part by the negligence of the Contractor's officers, agents, volunteers, or employees, but not for claims arising from the State's sole negligence.
8. **EQUAL OPPORTUNITY CLAUSE:** The Contractor agrees to abide by the provisions of Title VI and VII of the Civil Rights Act of 1964 (42USC 2000e) which prohibits discrimination against any employee or applicant for employment or any applicant or recipient of services, on the basis of race, religion, color, or national origin; and further agrees to abide by Executive Order No. 11246, as amended, which prohibits discrimination on the basis of sex; 45 CFR 90 which prohibits discrimination on the basis of age; and Section 504 of the Rehabilitation Act of 1973, or the Americans with Disabilities Act of 1990 which prohibits discrimination on the basis of disabilities. Also, the Contractor agrees to abide by Utah's Executive Order, dated March 17, 1993, which prohibits sexual harassment in the work place.
9. **SEPARABILITY CLAUSE:** A declaration by any court, or any other binding legal source, that any provision of this contract is illegal and void shall not affect the legality and enforceability of any other provision of this contract, unless the provisions are mutually dependent.
10. **RENEGOTIATION OR MODIFICATIONS:** This contract may be amended, modified, or supplemented only by written amendment to the contract, executed by the same persons or by persons holding the same position as persons who signed the original agreement on behalf of the parties hereto, and attached to the original signed copy of the contract.
11. **DEBARMENT:** The Contractor certifies that neither it nor its principals are presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from participation in this transaction (contract), by any governmental department or agency. If the Contractor cannot certify this statement, attach a written

explanation for review by the State. The Contractor must notify the State Director of Purchasing within 30 days if debarred by any governmental entity during the Contract period.

12. **TERMINATION:** Unless otherwise stated in the Special Terms and Conditions, this contract may be terminated, with cause by either party, in advance of the specified termination date, upon written notice being given by the other party. The party in violation will be given ten (10) working days after notification to correct and cease the violations, after which the contract may be terminated for cause. This contract may be terminated without cause, in advance of the specified expiration date, by either party, upon 90 days prior written notice being given the other party. On termination of this contract, all accounts and payments will be processed according to the financial arrangements set forth herein for approved services rendered to date of termination.

13. **NONAPPROPRIATION OF FUNDS:** The Contractor acknowledges that the State cannot contract for the payment of funds not yet appropriated by the Utah State Legislature. If funding to the State is reduced due to an order by the Legislature or the Governor, or is required by State law, or if federal funding (when applicable) is not provided, the State may terminate this contract or proportionately reduce the services and purchase obligations and the amount due from the State upon 30 days written notice. In the case that funds are not appropriated or are reduced, the State will reimburse Contractor for products delivered or services performed through the date of cancellation or reduction, and the State will not be liable for any future commitments, penalties, or liquidated damages.

14. **SALES TAX EXEMPTION:** The State of Utah's sales and use tax exemption number is E33399. The tangible personal property or services being purchased are being paid from State funds and used in the exercise of that entity's essential functions. If the items being purchased are construction materials, they will be converted into real property by employees of this government entity, unless otherwise stated in the contract.

15. **WARRANTY:** The contractor agrees to warrant and assume responsibility for all products (including hardware, firmware, and/or software products) that it licenses, contracts, or sells to the State of Utah under this contract for a period of one year, unless otherwise specified and mutually agreed upon elsewhere in this contract. The contractor (seller) acknowledges that all warranties granted to the buyer by the Uniform Commercial Code of the State of Utah apply to this contract. Product liability disclaimers and/or warranty disclaimers from the seller are not applicable to this contract unless otherwise specified and mutually agreed upon elsewhere in this contract. In general, the contractor warrants that: (1) the product will do what the salesperson said it would do, (2) the product will live up to all specific claims that the manufacturer makes in their advertisements, (3) the product will be suitable for the ordinary purposes for which such product is used, (4) the product will be suitable for any special purposes that the State has relied on the contractor's skill or judgment to consider when it advised the State about the product, (5) the product has been properly designed and manufactured, and (6) the product is free of significant defects or unusual problems about which the State has not been warned. Remedies available to the State include the following: The contractor will repair or replace (at no charge to the State) the product whose nonconformance is discovered and made known to the contractor in writing. If the repaired and/or replaced product proves to be inadequate, or fails of its essential purpose, the contractor will refund the full amount of any payments that have been made. Nothing in this warranty will be construed to limit any rights or remedies the State of Utah may otherwise have under this contract.

16. **PUBLIC INFORMATION:** Contractor agrees that the contract will be a public document, and may be available for distribution. and Contractor gives the State express permission to make copies of the contract and/or of the response to the solicitation in accordance with the State of Utah Government Records Access and Management Act. The permission to make copies as noted will take precedence over any statements of confidentiality, proprietary information, copyright information, or similar notation.

17. **DELIVERY:** Unless otherwise specified in this contract, all deliveries will be F.O.B. destination with all transportation and handling charges paid by the Contractor. Responsibility and liability for loss or damage will remain with Contractor until final inspection and acceptance when responsibility will pass to the State except as to latent defects, fraud and Contractor's warranty obligations.

18. **ORDERING AND INVOICING:** All orders will be shipped promptly in accordance with the delivery schedule. The Contractor will promptly submit invoices (within 30 days of shipment or delivery of services) to the State. The State contract number and/or the agency purchase order number shall be listed on all invoices, freight tickets, and correspondence relating to the contract order. The prices paid by the State will be those prices listed in the contract. The State has the right to adjust or return any invoice reflecting incorrect pricing.

19. **PAYMENT:** Payments are normally made within 30 days following the date the order is delivered or the date a correct invoice is received, whichever is later. All payments to the Contractor will be remitted by mail unless paid by the State of Utah's Purchasing Card.

20. **PATENTS, COPYRIGHTS, ETC.:** The Contractor will release, indemnify and hold the State, its officers, agents and employees harmless from liability of any kind or nature, including the Contractor's use of any copyrighted or uncopyrighted composition, secret process, patented or un-patented invention, article or appliance furnished or used in the performance of this contract.

21. **ASSIGNMENT/SUBCONTRACT:** Contractor will not assign, sell, transfer, subcontract or sublet rights, or delegate responsibilities under this contract, in whole or in part, without the prior written approval of the State.

22. **DEFAULT AND REMEDIES:** Any of the following events will constitute cause for the State to declare Contractor in default of the contract: 1. Nonperformance of contractual requirements; 2. A material breach of any term or condition of this contract. The State will issue a written notice of default providing a ten (10) day period in which Contractor will have an opportunity to cure. Time allowed for cure will not diminish or eliminate Contractor's liability for damages. If the default remains, after Contractor has been provided the opportunity to cure, the State may do one or more of the following: 1. Exercise any remedy provided by law; 2. Terminate this contract and any related contracts or portions thereof; 3. Impose liquidated damages, if liquidated damages are listed in the contract; 4. Suspend Contractor from receiving future solicitations.

23. **FORCE MAJEURE:** Neither party to this contract will be held responsible for delay or default caused by fire, riot, acts of God and/or war which is beyond that party's reasonable control. The State may terminate this contract after determining such delay or default will reasonably prevent successful performance of the contract.

24. **PROCUREMENT ETHICS:** The Contractor understands that a person who is interested in any way in the sale of any supplies, services, construction, or insurance to the State of Utah is violating the law if the person gives or offers to give any compensation, gratuity, contribution, loan or reward, or any promise thereof to any person acting as a procurement officer on behalf of the State, or who in any official capacity participates in the procurement of such supplies, services, construction, or insurance, whether it is given for their own use or for the use or benefit of any other person or organization (63-56-73, Utah Code Annotated, 1953, as amended).

25. **CONFLICT OF TERMS:** Contractor Terms and Conditions that apply must be in writing and attached to the contract. No other Terms and Conditions will apply to this contract including terms listed or referenced on a Contractor's website, terms listed in a Contractor quotation/sales order, etc. In the event of any conflict in the contract terms and conditions, the order of precedence shall be: 1. State Standard Terms and Conditions; 2. State Special Terms and Conditions; 3. Contractor Terms and Conditions.

OWNER Standard Terms and Conditions (Revision date: Aug 12, 2004)

Reference: Division of Purchasing Standard Terms and Conditions (Revision date: Nov 21, 2003)

ATTACHMENT B: SPECIAL TERMS AND CONDITIONS

B.1 LIQUIDATED DAMAGES: In the event consultant fails to complete the work within the time agreed upon in consultant's schedule as set forth in part 4, or within such additional time as may have been allowed by owner, there will be deducted from any moneys due or that may become due consultant the sum of \$200.00 per day, for each and every calendar day beyond the agreed or extended completion day, that the work remains uncompleted. Such sum is fixed and agreed upon by the owner and consultant as liquidated damages due the owner by reason of the inconvenience and added costs of administration, engineering and supervision resulting from consultant's default, and not as a penalty.

Permitting CONSULTANT to continue and finish the WORK or any part of it after the time fixed for its completion, or after the date to which the time for completion may have been extended, in no way operates as a waiver on the part of the OWNER of any of the OWNER's rights under the CONTRACT.

B.2 TERMINATION: This contract may be terminated, with or without cause, in advance of the specified expiration date, by either party, upon 30 days prior written notice being given to the other party. In the event of DEFAULT by CONSULTANT, termination may be executed as described by the DEFAULT Clause of the *DIVISION OF OIL, GAS AND MINING GENERAL CONDITIONS FOR ABANDONED MINE RECLAMATION PROJECTS*. On termination of this contract all accounts and payments will be processed according to financial arrangements set forth herein for services rendered to the date of termination.

B.3 NONAPPROPRIATION OF FUNDS: Financial obligations of the OWNER payable after the current fiscal year are contingent upon funds for the purpose being appropriated, budgeted or otherwise made available. If funds are not appropriated or otherwise available to continue the payment, this contract may be terminated without penalty by giving thirty (30) days written notice.

B.4 LIABILITY AND INDEMNIFICATION: It is agreed that CONSULTANT will at all times protect and save harmless, the State of Utah and all institutions, agencies, departments, authorities and instrumentalities of the State of Utah and any member of their governing bodies or their boards or commissions or any elected or appointed officers or any other of their employees or authorized volunteers, or private landowners who have consented to reclamation construction and/or have consented to allow ingress or egress to a reclamation site, as described in the general conditions of the project specifications which are included herein by reference, from any and all claims, damages of every kind and nature made, rendered or incurred by or in behalf of any person or corporation whatsoever, including the parties hereto and their employees that may arise, occur or grow out of any acts, actions, work or other activity done by CONSULTANT in the performance and execution of this CONTRACT.

B.5 CONSULTANT QUALIFICATIONS: CONSULTANT's past performance, organization, equipment, and ability to perform and complete the contract in the manner and within the time limit specified will be considered by the OWNER in the awarding of the CONTRACT. Beginning with contracts awarded in 1999, all CONSULTANTS who perform WORK on a Utah Abandoned Mine Reclamation Program (UAMRP) contract will be evaluated based on the Consultant Performance Rating Form (see Appendix A). A rating (or average rating in the case of multiple contracts) of ten points or more is required for any CONSULTANT who has previously performed WORK on a UAMRP project.

B.6 CERTIFICATIONS: PART A: Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion – Lower Tier Covered Transactions. 1) The CONSULTANT certifies that neither it nor its principals is presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from participation in this transaction (contract), by any Federal department or agency. 2) Where the CONSULTANT is unable to certify to any of the statements in this certification, such prospective participant shall attach an explanation to this proposal. PART B: Certification Regarding Lobbying. The undersigned certifies, to the best of his or her knowledge and belief, that: 1) No Federal appropriated funds have been paid or will be paid, by or on behalf of the undersigned, to any person for influencing or attempting to influence an officer or employee of an agency, a Member of Congress and officer or employee of Congress, or an employee of a Member of Congress in connection with the awarding of any Federal contract, the making of any Federal grant, the making of any Federal loan, the entering into of any cooperative agreement and the extension, continuation, renewal, amendment, or modification of any Federal contract, grant, loan, or cooperative agreement. 2) If any funds other than Federal appropriated funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with this Federal contract, grant, loan, or cooperative

agreement, the undersigned shall complete and submit Standard Form-LLL, "Disclosure Form to Report Lobbying," in accordance with its instructions. This certification is a material representation of fact upon which reliance was placed when this transaction was made or entered into. Submission of this certification is a prerequisite for making or entering into this transaction imposed by Section 1352, title 31, U.S. Code. Any person who fails to file the required certification shall be subject to a civil penalty of not less than \$10,000 and not more than \$100,000 for each such failure.

ATTACHMENT C: SCOPE OF WORK

C.1 THE WORK

The WORK to be performed is described in the following tasks: (1) literature review, (2) field inventory, (3) cultural/historic inventory and survey, (4) reclamation design, (5) land ownership research, (6) preparation of inventory report and deliverables. Inventory data will be incorporated into a customized Microsoft Access database. Developed in-house specifically for the AMRP, the database requires that data conform to standard and exact formats. Detailed requirements for each task are presented in sections C.2, C.3, C.4, C.5, and C.6.

C.2 LITERATURE REVIEW

CONSULTANT shall review and assimilate all forms, examples, and templates supplied by OWNER prior to beginning field inventory and utilize them for the WORK.

CONSULTANT shall conduct a thorough literature search for information pertaining to abandoned mines within the project area. The literature search will include but not be limited to UGS, USGS, and USBM Bulletins and Circulars, UMOS/CRIB database, BLM files, and 7.5-minute USGS topographic maps. CONSULTANT shall be aware that available literature lists many of the abandoned mine sites in the project areas but that other unrecorded mines do exist.

CONSULTANT shall research and write a historical overview of the project area. The historical overview must be sufficient to establish the necessary context to assess National Register eligibility. It should be based on a variety of information sources including local and regional libraries and museums. A lengthy treatise is not expected.

CONSULTANT shall conduct an aerial photograph review. Although coverage is not currently statewide, many digital orthophoto quads (DOQs) are available for free download from <http://agrc.utah.gov/index.html>.

C.3 FIELD INVENTORY

C.3.1 INVENTORY APPROACH

CONSULTANT will develop a systematic inventory approach to ensure that all abandoned mines in the project area are identified and documented. It is important that the inventory approach is designed such that a logical geographic portion of the project area will be considered complete if funding falls short of covering the entire initial project area. Funding for each project is allotted based upon an initial estimate of the number of abandoned mines that will be found within the project area. When substantially more mines are found to exist within the project area than were initially estimated, the project area may have to be reduced in size. By using a systematic inventory approach it is possible to clearly delineate the area(s) in which the inventory has been completed. CONSULTANT shall provide a polygon shapefile (projbound.shp) that delineates the aerial extent in which inventory was completed (final project area). The shapefile shall contain the attribute data as specified in Appendix D.

The CULTURAL/HISTORIC inventory and survey should take into account the geographic distribution of the mines, the known cultural features based on the inventory data, and anticipated patterns of cultural features and significance based on the archival research. The cultural inventory must include enough area so that recommended treatment of towns, camps, other habitation sites, transportation systems, linear features, etc. in the project area, but not directly impacted by the proposed reclamation work, can be included in the Cultural Report. The field design must be approved by the SHPO and if requested, the appropriate federal agency. Archaeologists are not permitted to go underground. No underground surveys are required.

OFFEROR must possess all appropriate federal and state permits needed to conduct archaeological and historical survey and inventory work in Utah and submit copies of them for approval by the OWNER, SHPO and if applicable, any local federal land managing agency officials. If Bureau of Land Management (BLM) managed public lands are involved, a *Fieldwork Authorization Request* (Federal Form 8151-3), signed by the appropriate BLM Field Office Manager, must be submitted to the OWNER prior to any fieldwork. If work is to occur on US Forest Service managed lands, the appropriate Special Use Permit must be obtained from the District Ranger and submitted to the OWNER prior to any fieldwork.

Not all mine features (entrances) inventoried by engineering personnel will require closure. Closed features (where no AMRP work will be conducted) do not require cultural survey.

C.3.2 TAG NUMBERS AND MARKERS

Each inventoried mine opening shall be assigned a **unique** Tag Number. The Tag Number consists of twelve characters derived in the following way: one digit for the quadrant of the state, two digits for the township number, two digits for the range number, two digits for the section number, two letters for the opening type code and three digits for a sequential number in the section (see Appendix C). There shall be no sequential gaps in the Tag Numbers assigned in each section. Mine features shall be identified by the full Tag Number in all documents and tables in order to minimize confusion and the need for cross-referencing. Tag Numbers may be truncated only on permanent mine feature markers and where feature labels occur on maps.

CONSULTANT shall mark all mine features with permanent and lasting markers. The preferred method is a steel washer stamped with the tag number and secured with a masonry bolt to competent rock surrounding the mine opening. Foil tags and wooden stakes are not acceptable. At a minimum, markers shall be inscribed with partial Tag Numbers, consisting of the section number, the opening type code and a sequential number in the section with leading zeros omitted. For example, the marker for **3251705VO002** would be inscribed **05VO2**.

C.3.3 GPS DATA

All GPS data will be collected using a GPS unit capable of storing data in a data dictionary. GPS data must be accurate within 5 meters and suitable for output to an ESRI® shapefile or coverage. A suggested data dictionary (GPS\proj.ddf) will be provided by the OWNER (see Appendix E). CONSULTANT is encouraged to either modify or create a new data dictionary if doing so facilitates more efficient data collection.

CONSULTANT shall collect GPS location points for the following opening types: HO, HC, HP, VO, VC, VP, IO, SH, PI, and ES (see Appendix C for opening type code definitions). CONSULTANT shall GPS the perimeter (as a polygon) of any mine feature with a diameter greater than approximately 50 feet. All cultural sites, features, datums, and site boundaries including the Area of Potential Effect (APE) shall be located by GPS. CONSULTANT shall provide a mine feature point shapefile or coverage (projmines.shp), a preferred equipment access route line shapefile or coverage (projaccess.shp), and a polygon shapefile or coverage of feature perimeters (projpoly.shp). Each shapefile or coverage shall contain the attribute data as specified in Appendix D. Archaeologist must survey the most appropriate equipment access route for cultural features. The surveyed route must be represented on the project maps for use during construction.

CONSULTANT shall collect GPS line features for access routes to all hazardous mine features. Please note that many access routes already exist in digital format in the 1:24,000 scale roads and trails dataset (GISstate\SGID\st024\trrds.shp) provided by OWNER. CONSULTANT does not need to GPS roads and trails or segments thereof that are already contained in the trrds.shp file. Access routes are not necessarily roads or trails, but are the best access route to a mine site. Please refer to the access type codes in Appendix C. CONSULTANT shall provide an access route line shapefile (projroads.shp) with attribute data as specified in Appendix D.

CONSULTANT shall GPS project area roads in sufficient detail to allow contractors to find the correct road to any hazardous mine feature. This may require GPS coordinates for roads that do not lead to hazardous mine features (spur roads) for navigational purposes. GPS features for spur roads need only be for 50 feet or so from their intersection with access routes as an indication of their presence.

C.3.4 INVENTORY FORMS

A significant component of the inventory is to determine which mine features are hazardous and therefore warrant reclamation work. OWNER recognizes that not all mine features are equally hazardous. Some mine openings in the project area are shallow holes or are in competent rock, while others are unstable and/or have extensive workings. OWNER considers the most common hazards to be fall and entrapment hazards created by mine openings and the host of problems associated with unrestricted access to deep underground workings. Falling rock hazards from unstable brows over portals, unstable highwalls, and unstable ground over shallow workings are also expected to be common hazards in the project area.

CONSULTANT is required to complete abandoned mine inventory forms for all hazardous mine features (Engineering\InventoryForm2002.pub). Sample completed inventory forms are located in Appendix B. Note that it is **not** necessary to complete inventory forms for non-hazardous mine features which do not require reclamation action.

CONSULTANT is also required to complete abandoned mine cultural/historic inventory forms for all mine features determined to require closure (Cultural/Historic/InventoryForm2004.pub) and Intermountain Antiquities Computer System (IMACS) forms on all sites determined to be eligible for listing on the National List of Historic Places. Sample completed inventory forms are located in Appendix B. Note that it is **not** necessary to complete cultural/historic inventory forms for non-hazardous mine features which do not require reclamation action.

The *Access Description* on the inventory form should consist of a narrative detailing access directions to the mine opening. Directions should be sufficient such that someone with no prior knowledge of the site would easily be able to navigate to it. The *Site Description* on the inventory form should consist of a narrative description of the site. Any significant information pertaining to the opening or the site vicinity that is not described elsewhere on the inventory form should be recorded in the *Site Description*. The *Closure Recommendation* on the inventory form should consist of a narrative description of the closure recommendation as made in the field by a qualified Engineer.

CONSULTANT shall include plan view and cross-section sketches of all hazardous mine features. Sample completed site sketch forms are located in Appendix B. Site sketches shall utilize standard map notation and include a north arrow and scale. Each sketch shall show surface features, mine features, and the relationship of the site to adjacent landmarks. The site sketch should indicate photo locations and orientations. Dimensions listed on the sample inventory forms are those required for entry into OWNER's AMR database. Measurements collected in the field should, however, not be limited to the minimum required. CONSULTANT shall record sufficient measurement data on the site sketch for closure design, volume/area calculations, and cost of materials estimates.

CONSULTANT shall estimate materials quantities (e.g., cubic yards of backfill or square feet of wall) required to perform the reclamation action and the reclamation method (e.g., hand labor or heavy equipment). These estimated quantities and methods will be used to prepare site-specific work descriptions, a detailed cost schedule, and mine closure in the construction bid package.

CONSULTANT shall indicate preferred equipment access to each mine opening designated for closure. Appropriate cultural survey shall be performed on all access routes. The surveyed access route for each opening shall be recorded with a GPS and included on the project maps created in GIS. It should also be marked on the sketch map section of the engineering inventory form.

CONSULTANT shall deliver original inventory forms in 3-ring binders, no bigger than 3", with mine features sorted by tag number and indexed by cadastral section.

C.3.5 DIGITAL PHOTOS

CONSULTANT shall take both a close-up and an overview digital photo of each mine feature. Field inventory and photography shall not be performed on days when snow cover limits visibility of mining features. The photos shall be in JPG format with 2-megapixel resolution. Camera photo quality shall be set to 1792 X 1200 pixel resolution with BASIC JPEG image compression, which will yield a photo file size of approximately 400-700 kilobytes. At this file size, approximately 1300 photo files will fit on one 650-megabyte Read/Write CD.

CONSULTANT shall use the following naming convention for digital photo files: Tag Number + lowercase "i" (for inventory photograph) + a sequential number. For example, file names for two photos of HO1 in section 7 would be **3270407HO001i1.jpg** and **3270407HO001i2.jpg**. Photos of cultural features other than mine openings will usually be labeled ES for equipment and structures. For example, the photo of an ore bin in section 7 would be labeled **3270407ES001i1.jpg**. In the hard copy of the Cultural Report, the photo will be printed on regular paper and must be labeled with its filename described above, and a site name if known. For example, if 3270407HO001i2.jpg is used as a photograph in the Cultural Report or IMACS form, it would be labeled 3270407HO001i2.jpg/Smith Mine, Adit 2. With this information, a person reading the cultural report could go back to the CD of digital photos and find the picture of the Smith Mine, Adit 2.

CONSULTANT shall deliver digital photographs on CD (Photos\AMR045916) and in print on regular (20 lb. copy or equivalent) white paper included in the 3-ring inventory binders (see C.3.4). See Appendix E for CD directory structure. Each printed digital photograph shall be labeled with the tag number, date the photo was taken, photo description, and the direction in which the photo was taken. Place the photos in the binders with the inventory forms for the feature they relate to. Mine features shall be sorted by tag number and indexed by cadastral section.

C.3.6 TABULAR INVENTORY DATA

OWNER shall provide CONSULTANT with a template for data entry in a Microsoft Excel spreadsheet (ProjSummary.xls). CONSULTANT shall tabulate inventory information as a component of ProjSummary.xls. This information is required in the specific format described in Appendix C for import into OWNER's database. This spreadsheet also contains all the cultural inventory information in a tabular format that CONSULTANT may use to create completed IMACS forms. CONSULTANT shall include any additional tabular inventory information in ProjSummary.xls on the MAIN worksheet (see Appendix C).

C.4 CUTURAL/HISTORIC INVENTORY

The CONSULTANT 's permitted archaeologist must visit each open mine opening. A minimum 30-meter radius around each opening must be surveyed. Additional areas may need a survey where associated cultural resources extend beyond the 30-meter radius and along all access routes for equipment. No subsurface remains need to be evaluated. The archaeologist shall determine eligibility and determine effect for each eligible property (mine opening) using the AMRP tag number. Multiple ID systems must be cross-referenced. The CONSULTANT shall develop closure designs that are sensitive to significant cultural resources. The final closure design recommended by the engineering firm should utilize mitigation measures to reduce impacts to significant resources when feasible so that a no adverse effect determination is possible. When an adverse effect determination is unavoidable, the CONSULTANT should provide clear recommendations for appropriate mitigation measures.

CONSULTANT shall record all cultural resources associated with the mine openings designated for closure either as Isolated Finds, individual sites or as larger sites with several openings to form larger mining sites, historic landscapes or historic districts. This will depend on the distribution and nature of the resources present. All sites, features, datums, preferred equipment access routes, and site boundaries including the Area of Potential Effect (APE) shall be located by GPS according to Section C.3.3 GPS Data.

All cultural inventory data will be tabulated in the ProjSummary.xls spreadsheet. The fields in the Cultural and IMACS worksheets of this spreadsheet are designed to be used with a merge process to populate IMACS forms for submission to the State Historic Preservation Officer (SHPO). Blank IMACS forms may be best for collecting and recording this information in the field, which can then be transcribed into the spreadsheet and merged into a printed (rather than handwritten) IMACS form for final submission.

C.5 RECLAMATION DESIGN

CONSULTANT shall assess the potential hazard and cultural significance at each mine feature and recommend the appropriate reclamation action, applying accepted engineering standards and practices and considering cultural/historic status. OWNER shall provide CONSULTANT with a set of standard closure design drawings (ClosureDrawings.pdf). Although CONSULTANT is encouraged to utilize existing closure designs where applicable, CONSULTANT shall develop custom closures designs and include custom closure design drawings in the final report where they prove to be cost effective or unavoidable due to site-specific conditions. Custom closure designs include any significant modification of a standard closure design, non-standard applications of standard closure designs, or any non-standard closure design such as, but not limited to, site grading and earthwork, drilling, blasting, fabrication, etc. Calculation of loads, safety factor, etc will be required only for these custom closure designs. Application of any new closure method will be subject to approval by OWNER.

CONSULTANT shall recommend acceptable alternative closures in case first choice recommendation cannot be used due to wildlife or other concerns. Wildlife surveys may not be available for use by the time CONSULTANT begins closure selection process. See section C.11, C.12, and C.13 for additional information.

C.6 LAND OWNERSHIP RESEARCH

CONSULTANT shall conduct research to determine property boundaries and ownership for affected lands in the project area. Affected lands are those that have mine features (open or closed) and/or access routes to mine features located on them. It is not necessary to collect detailed land ownership information for municipalities, subdivisions, etc. unless mine features are located there or access routes cross these lands.

CONSULTANT shall document all information necessary for OWNER to obtain Right of Entry Consents for reclamation construction (Realty\ProjOwnership.xls). CONSULTANT shall utilize, where appropriate and available, the following sources of information to document land ownership: U.S. Bureau of Land Management (BLM) mining

district sheets, BLM mineral surveys, BLM Notices of Location, BLM mining claim abstracts, BLM LR2000 database reports, County Recorder's plat maps and title documents, Forest Service maps, Tax assessment records, etc. In general, OWNER expects that CONSULTANT shall obtain current land ownership information only; it is not necessary to obtain a full Chain of Title. However, it may be necessary to research land ownership records to a point where unclear and/or disputed ownership can be adequately and reasonably resolved. CONSULTANT shall provide photocopies (not to exceed 11" x 17") of pertinent title documents, tax records, mineral surveys, LR2000 database reports, plats, etc. that serve to establish and corroborate and/or cross-check ownership.

CONSULTANT shall contact each landowner to confirm land ownership research. Under no circumstances will CONSULTANT negotiate closures or attempt to acquire consents of any kind. Landowner questions regarding the project or OWNER intent shall be directed to OWNER.

CONSULTANT shall plot all patented and unpatented claims and private parcels using legal or metes and bounds descriptions, where possible. Digitized claims and parcels are acceptable only when legal descriptions or metes and bounds descriptions from surveys and other records are not available.

CONSULTANT shall generate a single polygon shapefile containing all claims and private parcels (see Appendix D) and produce a set of maps that show land ownership boundaries in relation to all mine features and access routes. It is preferred that these maps be the project site location maps with the land status layers added. These maps are usually too complex for field use, but are most helpful for land ownership work.

CONSULTANT shall also tabulate the following land ownership information as a Microsoft Excel spreadsheet (ProjOwnership.xls): tag number; owner number (unique, sequential number beginning with the number 1, assigned by CONSULTANT); surface and subsurface owner name, percent ownership, address, and phone number; patented and unpatented claim name; land type (e.g., Federal, Private, etc.); claim type (patented or unpatented); land number (MS, Lot, UMC, or Parcel number); quarter section in which mine feature is located; county; ownership type (surface, minerals, or both); date of land acquisition; title information (book and page number), recommended closure type; log of correspondence with landowner; a list of sources utilized for land ownership verification (e.g., State Tax Commission), and map sheet reference. See example PDF files in Maps\examples on OWNER provided CD. OWNER shall provide CONSULTANT with a sample of the preferred document format (see Realty\examples).

C.7 INVENTORY REPORT AND DELIVERABLES

C.7.1 DIRECTORY STRUCTURE

OWNER's directory structure is designed to make the final transfer of data between CONSULTANT and the OWNER as efficient as possible. The directory structure in Appendix E reflects OWNER's file organization system. By receiving deliverables in this format, data transfer becomes a simple process of "dragging and dropping" folders from CONSULTANT supplied data CD to OWNER's local server. This directory structure becomes particularly important in the transfer of GIS data. Statewide GIS datasets and quad images are very large files that occupy a significant portion of OWNER's local server space. Because server space is costly and limited, it is necessary to minimize duplication of these large datasets and files. By requiring CONSULTANT to utilize OWNER's file organization system and naming conventions it becomes very easy for the OWNER to recognize and transfer only unique project datasets from the data CD to OWNER's server.

C.7.2 PROJECT SUMMARY SPREADSHEET

Projsummary.xls is provided as the main spreadsheet in which to keep all project data. The spreadsheet contains the following worksheet tabs: MAIN, INSTRUCTIONS, AMRADMIN, LOCATION, CULTURAL and ENGINEERING.

The MAIN tab is provided as the main worksheet in which to keep all of the project inventory data as CONSULTANT prepares and completes the project. Some color-coded example fields have been provided with names that correspond to field names of data required for entry in OWNER's AMR database. However, CONSULTANT is free to organize and format this table in any way that is most useful.

Upon completion of the project, CONSULTANT shall prepare all AMRADMIN, LOCATION, CULTURAL and ENGINEERING worksheet data for the AMR database. These tab names correspond to table names in OWNER's AMR database. Each tab contains column headings that correspond to the field names in OWNER's AMR database tables. It is important that all data be entered in the correct format, as defined in Appendix C. Also, see OWNER provided template (Engineering\ProjSummary.xls). It is important that inventory data contained in the AMRADMIN,

LOCATION, CULTURAL and ENGINEERING worksheets are free of errors (e.g., 4020212HO005 instead of 4020212HO5) and that no data are missing. Error-checking at this point will potentially save the OWNER hours of error correcting at a later date. OWNER's AMR database runs on the Microsoft Access platform and utilizes data entry masks that will not allow the importation of data in non-standard formats.

The OWNERSHIP worksheets contain required ownership information fields that are populated with example data.

C.7.3 INVENTORY/ENGINEERING REPORT

CONSULTANT shall provide a report documenting methods used for field inventory, cultural inventory, engineering and design, and cost estimation. Inventory/engineering report shall be provided in bound, hard copy and in Microsoft Word format and be located in Engineering\ProjReport.doc.

C.7.4 CULTURAL/HISTORIC REPORT

The CONSULTANT shall provide a separate cultural final report that includes all data in both written and electronic form. The report must be adequate to be used by OWNER to establish eligibility and to determine the effect of the WORK on eligible sites in order to comply with the NHPA Section 106. The Report shall have the following sections as necessary: Cover Sheet, Management Summary, Table of Contents to include Introduction and Project Description, Regulatory Setting, Class II and Archival Research Methods, Mining District Context, Brief History of Mining in the Region, Prospecting, Mining Claims and Patents, Mine Development, Survey Results, Evaluation Criteria, Eligibility Status, Assessment of Impacts and Effect, References Cited, Appendix I: IMACS Forms including photographs, Appendix II: Maps, and Appendix III: Closure Table with Cultural Status. IMACS form data will also be tabulated in the Projsummary.xls spreadsheet for input in the OWNER's database. This spreadsheet may be used by CONSULTANT to populate paper IMACS forms, if desired. This report must be submitted to OWNER in draft form for review and approval by OWNER and possibly SHPO before the final version is delivered.

C.7.5 PROJECT COST ESTIMATE

CONSULTANT shall prepare, both in hard copy and electronic format, an estimated cost for reclamation construction, presented as lump-sum items including unit costs that will be broken out into individual items (as in the bid sheets for the construction bid package). The cost estimate shall be based on unit costs derived from accepted estimating practices, as well as known prevailing local rates and historical cost data provided by OWNER. Sources or derivations of unit costs shall be explained in the project cost estimate. The electronic copy of the cost estimate shall be in Microsoft Word 2000 format and be located in Engineering\ProjCostEstimate.doc.

C.7.6 MINE CLOSURE SCHEDULE

CONSULTANT shall prepare an appendix that includes a schedule of mine closures with Tag Number, map sheet reference, dimensions, reclamation action, estimated quantities and cultural eligibility status, to summarize the work for quick reference. This will be included as a table in the Microsoft Word project report document (ProjReport.doc).

C.7.7 CLOSURE DRAWINGS

OWNER will provide CONSULTANT with a set of standard closure design drawings, located on the provided data CD (Engineering\BidPackage\ClosureDrawings.pdf). CONSULTANT shall append OWNER's set of standard closure design drawings with design drawings for all custom closure types. CONSULTANT shall provide a complete set of closure drawings to be used as a component of the Construction Specification Package. New or modified versions of OWNER's standard closure design drawings shall be provided in hard copy and in Adobe Acrobat (.pdf) format and be located on the delivered project data CD in Engineering\BidPackage\ClosureDrawings.pdf.

C.7.8 PROJECT MAPS

Maps of the project area shall contain all inventoried mine features and access routes and show sufficient detail for the contractor bidding on the project to have a clear understanding of the scope of the work. CONSULTANT shall submit hard copy maps on 8.5" x 11" sheets where practical or on 11" x 17" size at the maximum.

Map Layout & Design

There are many ways to organize and present the geographic data compiled by the inventory. It is the AMRP's

intent and desire to obtain maps that are useful and convenient to the user for relocating sites in the field. Maps that are organized as tiles in a grid (such as sections), for instance, may be good for documenting and cataloging sites, but they are often frustrating and inconvenient for the field user because access routes and navigational landmarks may lie off the sheet and several map sheets may be required to reach a site.

The AMRP recognizes that good map design is subjective and is as much art as it is science. The graphic layout and organization of the maps will vary from project to project depending on the size and shape of the project area, the number of mine sites, the distribution of sites within the project area, the topography, roads, and cultural significance, among other things. Because of this, there is no fixed set of specifications or standards for mapping, but the AMRP offers the following guidelines for maps:

- Once the field inventory work has been completed and the GPS data have been compiled, send the mine location point data and access route line data to the AMRP for review. The AMRP can recommend map organization and layouts based on the geographic distribution of the sites. Early consultation before much investment has been made and ongoing dialog can prevent headaches later.
- The AMRP has had good experience using a hierarchical map organization, in which sub-areas for more detailed, larger scale maps are defined around clusters of mines. Depending on the size of the project, sub-area map scale, and density of mines, it may be necessary to define a second tier of sub-areas for even more detail. Ideally, sub-areas should all have the same dimensions, scale, and orientation (portrait/landscape). The difference in scale between hierarchical levels should generally be whole number increments (e.g. 1:48,000 and 1:12,000).
- If there are only a few, isolated, very dense clusters of mines and space on the map sheet permits, use larger scale insets for detail instead of creating a new map.
- Think in terms of access and of using the map to find the sites. The mines may be positioned near the edge of the sheet instead of centered if it helps to show more of an access road or if it picks up a topographic landmark.
- While there may be many more map sheets for a project, a person should be able to navigate from a road map type of landmark (town, major highway intersection) to any given mine site in the project using, at most, two or three map sheets.
- Use the smallest appropriate map scale for the level of information. That is, show as much land area as possible in a map to provide landmarks and context. However, map scales should not be reduced beyond the resolution of the printer. Contour lines on 1:24,000 scale USGS maps for mountainous terrain start to blend into a cloud when reduced to scales smaller than 1:48,000. It may be more appropriate to use the USGS 1:100,000 series maps in these cases.
- For mine location maps, try to use even map scales such as 1:1200, 1:4800, 1:12,000, etc., where one inch on the map represents even multiples of 10, 100, or 1,000 feet or whole miles. The markings on a standard ruler should represent even distances on the ground. "Print-to-fit" scales (such as 1:57,243) are acceptable for general project area location maps or overviews where you want to fit a large area onto a single page.
- Take full advantage of modern printing capabilities. Use grayscales, color, line weights, line types, etc. to organize data. Fonts for labels are readable down to about 6 points, and with similarly-sized symbols for mines a few feet apart from each other can be distinguished clearly even at scales as small as 1:12,000.
- Maximize the map area on the sheet. Legends, title blocks, and margins can be kept small (but leave a binding allowance).
- Try to minimize the total number of map sheets. Tabloid size (11" x 17") sheets are preferred. If mine distribution in the project area lends itself well to letter-size (8½"x11") sheets, they may be used. Generally, the legends, title blocks, and margins take too much of the space on this size sheet to make it useful.
- Sheets larger than 11"x17" are difficult to handle in the field, cannot be bound into a spec book without a map pocket, and must be folded manually.

- When the AMRP has specs printed, color maps and oversized sheets must be printed separately and manually collated prior to binding. The collation is simplified if these maps go at the end of the document.
- Annotate maps with useful, relevant navigational landmarks that may not be on the USGS topographic base. These include things such as highway mileposts, signs, gates (especially if locked), buildings, corrals, stock tanks, cattle guards, power lines, cell towers, anomalous vegetation or landforms (e.g. an isolated tall fir in the midst of sagebrush or pinyon-juniper), abandoned vehicles. Not all annotations are appropriate for all scales.
- Remember that the end user may be anyone from an engineer to an unskilled construction laborer.

Each map block shall contain a verbal and graphic scale, north arrow, legend, and be certified by the seal of a registered professional engineer in the State of Utah with a PE license in civil or mining engineering.

CONSULTANT shall also identify mine features on maps using an abbreviated Tag Number as a label so that labels are discernible. For example, an adit should be labeled 25HO5 instead of 4120434HO005 or, where section lines are shown and labeled, the same adit may be labeled HO5 without the section prefix.

CONSULTANT shall provide OWNER with Adobe Acrobat (.pdf) copies of all map sheets. Each PDF file should be set up to print the same size as the corresponding hard copy map with one PDF file per map. PDF file sizes should not exceed 1 megabyte in size. OWNER expects that most project areas will require multiple map sheets to represent all mine features at a scale in which individual labeled mine features and access routes are readily discernible. CONSULTANT shall work to minimize the number of map sheets needed to cover the area while still maintaining readability. At a minimum, OWNER requires two sets of map sheets to be provided in PDF format: a map set to be included with the construction specification package and a map set showing land ownership boundaries in relationship to hazardous mine features and access routes. PDF map files shall be named using the project number and sheet number as follows. For the Kessler Project (AMR045916), for example, engineering map Sheet 2E of 7E ("E" for engineering) shall be named 045916sh2Eof7E and land ownership map Sheet 1R of 2R ("R" for realty), shall be named 045916sh1Rof2R. Maps shall be provided in PDF format and be located in Maps\ProjMaps.pdf. See example PDF files in Maps\examples on OWNER provided CD.

C.7.9 PORTABLE ARCVIEW PROJECT FILE

Maps may be produced in ArcView, version 3.2 or higher, or in ArcGIS version 8 or higher.

In Arcview 3:

Portable ArcView project files can be run from CD or moved to OWNER's local server and run by editing the .apr file to point to existing statewide data sets and images on OWNER's server. By keeping all directory structure pathnames on data CDs consistent, the process of editing the ArcView project files is quite simple and can be automated. When creating this portable project, CONSULTANT shall include on the CD all themes, extensions and customizations necessary to run the project. The ArcView project shall be submitted in draft form for testing and approval by OWNER before the final version is accepted.

CONSULTANT shall create an encapsulated, portable ArcView project in the following manner:

- All files referenced by the ArcView project file (.apr) must be located in the directory structure below /916project/, where 'project' is Kessler.
- Set an environment variable 'mydrive' equal to the path above /916project/ (don't include " marks).
- Edit the project (.apr) file in a text editor and replace all occurrences of the path above /916project/ with \$mydrive.
- Open the project (.apr) to ensure that it works.
- Burn the entire directory below /916project/ to CD.
- Test the portable ArcView project by resetting the environment variable 'mydrive' equal to the letter of your CD drive and opening the project (.apr) on the CD to ensure that all links to data are intact.

Template.def is the layout template file created by ArcView to store layout templates. In order to make stored templates available in the portable project it is necessary to keep the template.def file with the project.apr file (in the project.apr's work directory). The layout template should provide OWNER with the fundamentals of CONSULTANT's map block. The goal is to allow the OWNER to modify or add datasets to maps views and easily

reproduce layouts that approximate those maps produced by CONSULTANT.

In ArcMap:

The .mxd file format is much tidier than the .apr file in ArcView. No special setup is required to move .mxd documents from the CD to the hard drive. However, CONSULTANT must ensure that all necessary layers (shapefiles and/or coverages) and reference files are included on the delivered CD with the ArcMap document.

C.8 DEFICIENCIES

If technical deficiencies, other engineering related problems or problems with acceptance of the Cultural Report by SHPO or federal agency (if applicable) are encountered in the final product in its use during the bidding or construction process, OWNER may require further information, clarification, or verification of assumptions from CONSULTANT. It is expected that if such deficiencies are found, CONSULTANT will act to alleviate and resolve any conflicting, missing or unsubstantiated information found within the Engineering and Design or Cultural Report at no additional cost. It is not the intent of OWNER to bind CONSULTANT to work that is not included as part of the WORK. OWNER's intent is to require CONSULTANT to complete the engineering and design accurately and in sufficient detail to perform construction work.

C.9 EXCLUDED SERVICES

The following services and work are to be excluded from this contract, not considered WORK in this AGREEMENT, and/or will be completed by the OWNER: Environmental Assessment and compliance with Endangered Species Act, landowner consent for right of entry, any and all work requiring entering underground mine workings (this activity is extremely hazardous and is prohibited), surface drilling, coring, or test trenches requiring equipment mobilization, unless approved by OWNER.

C.10 PERSONNEL QUALIFICATIONS

All work shall be performed by, or under the direct supervision of, a professional engineer (PE) registered in the state of Utah with a PE license in civil or mining engineering. The specifications and drawings produced shall be certified and stamped with the seal of the professional engineer. Land ownership research shall be performed by an individual with extensive experience in patented and unpatented mining claim ownership research.

All Cultural/Historic Work shall be performed by or under the direct supervision of a principal investigator (Archaeologist) qualified to do such work under 36 CFR 801 (or as approved by the SHPO) and permitted to perform such work in Utah by the Utah State Office of the Bureau of Land Management (BLM). The principal investigator must have experience in historic archaeology and surveys of historic mining areas.

Offeror must possess all appropriate federal and state permits needed to conduct archaeological/historical survey/inventory work in Utah and submit copies of them for approval by the AMRP, SHPO and, if appropriate, any local federal land managing agency officials. If Bureau of Land Management (BLM) managed public lands are involved, a *Fieldwork Authorization Request* (Federal Form 8151-3), signed by the BLM Field Office Manager who administers the land involved, must be submitted to the AMRP prior to any fieldwork. If work is to occur on US Forest Service managed lands, the appropriate Special Use Permit must be obtained from the District Ranger and submitted to the AMRP prior to any fieldwork.

C.11 PERMITS

CONSULTANT must possess all appropriate federal and state permits needed to conduct archaeological/historical survey/inventory work in Utah and submit copies of them for approval by the AMRP, SHPO and, if appropriate, any local federal land managing agency officials. If BLM managed public lands are involved, a *Fieldwork Authorization Request* (Federal Form 8151-3), signed by the appropriate BLM Field Office Manager, must be submitted to the AMRP prior to any fieldwork. If work is to occur on USDA Forest Service managed lands, the appropriate Special Use Permit must be obtained from the District Ranger and submitted to the AMRP prior to any field work.

C.12 SPECIAL PRECAUTIONS

ABANDONED MINE SITES ARE HAZARDOUS. CONSULTANT will exercise extreme caution when working near abandoned mines, equipment and structures. Some hazards, such as dangerous atmospheres or unstable ground

may not be readily apparent. CONSULTANT's safety plan must be adequate to protect all personnel working within the project area. CONSULTANT shall not enter mines.

C.13 LANDSCAPE CONSERVATION ISSUES

OWNER's intent in reclamation design is to be as sensitive as possible to preserving existing vegetation and minimizing visual disturbance. OWNER prefers reclamation designs that minimize the use of heavy equipment, minimize equipment traverses across vegetated areas, employ manual labor and hand tools, and keep disturbance localized. The Construction Bid Package should include appropriate stipulations regarding equipment use and other activities as necessary to minimize disturbance.

C.14 WILDLIFE CONSERVATION ISSUES

OWNER's intent in reclamation design is to be as sensitive as possible in preserving mine openings that serve as habitat for wildlife, especially bats. Reclamation designs that allow wildlife access but prevent the public from entering the mine workings should be evaluated. OWNER's biological consultant conducts internal mine surveys to evaluate the use of abandoned mines as bat habitat. Potential impacts due to mine reclamation activities are also evaluated in relation to threatened and endangered species.

ATTACHMENT D: DELIVERABLES SCHEDULE

D.1 LIST OF DELIVERABLES

CONSULTANT shall provide the following deliverables:

ONE (1) HARD COPY OF EACH THE FOLLOWING:

Item	Format	Description
Inventory/Engineering Report	3-ring binder or other binding	C.7.3
Cultural/Historic Report	3-ring binder Report and cultural inventory forms and prints of photographs for each feature surveyed suitable for submittal to SHPO	C.7.4
Engineer's Cost Estimate	3-ring binder (may be included with Inventory Report)	C.7.5
Schedule of Mine Closures	3-ring binder (may be included with Inventory Report)	C.7.6
Custom Closure Drawings (if any)	3-ring binder (may be included with Inventory Report)	C.7.7
Project Maps	3-ring binder (may be included with Inventory Report)	C.7.8
Land Ownership Package	Ownership Tables Ownership Maps Copies of Ownership Records	C.6
Inventory Information organized by Tag Number in 3-ring binders	Original field inventory forms Site sketch maps Prints of digital photographs labeled with descriptive information	C.3.4 C.3.4 C.3.5

TWO (2) HARD COPIES OF THE FOLLOWING:

Item	Format	Description
Cultural/Historic Report	3-ring binder Report, cultural inventory forms and prints of digital photographs for each feature surveyed	C.7.4

ON PROJECT DATA CD (organized as shown in Appendix E: DIRECTORY STRUCTURE):

Item	Filename	Format	Description
Project Summary Spreadsheet	ProjSummary.xls	Microsoft Excel	C.7.2
Inventory/Engineering Report	ProjInvReport.doc	Microsoft Word	C.7.3
Cultural Survey Report	ProjCultReport.doc	Microsoft Word	C.7.4
Engineer's Cost Estimate	ProjCostEstimate.doc	Microsoft Word	C.7.5
Schedule of Mine Closures	CloseSchedule.xls	Microsoft Excel	C.7.6
Custom Closure Drawings (if any)	ClosureDrawings.pdf	Adobe Acrobat and AutoCAD or other native format	C.7.7
Project Construction Bid Package Maps	ProjMaps.pdf	Adobe Acrobat and ESRI ArcGIS 8.0 or higher or ArcView 3.2 or higher	C.7.8
Portable ArcView Project	Proj.apr	ESRI ArcGIS 8.0 or higher or ArcView 3.2 or higher	C.7.9
Land Ownership Maps	ProjOwnerMaps.pdf and Proj.apr	Adobe Acrobat and ESRI ArcGIS 8.0 or higher or ArcView 3.2 or higher	C.6

Land Ownership Information Spreadsheet	ProjOwnership.xls	Microsoft Excel	C.6
Project Summary Spreadsheet	ProjSummary.xls	Microsoft Excel	C.3.6
Cultural/Historic Table with Cultural Status	CultStat.xls	Microsoft Excel	C.4
Digital photographs of each mine feature	Tag number + "i" + sequential number	JPEG at 2 mega-pixel resolution	C.3.5
Original and differentially corrected GPS files			C.3.3
ESRI® Shapefiles and corresponding legend files or ESRI® Coverages	ProjBound.shp, ProjMines.shp, etc.	ESRI® ArcView 3.2a or higher OR ArcGIS 8.1 or higher	C.3.3 and Appendix D
ArcView layout template file (if using ArcView 3.2)	Template.def	ESRI® ArcView 3.2a	This file is not necessary with ArcGIS
Portable ESRI ArcView project file OR ArcGIS Map Document	Project.apr Project.mxd	ESRI® ArcView 3.2 a ESRI® ArcGIS 8.1 or higher	C.7.9

D.2 DELIVERY SCHEDULE FOR DRAFTS AND FINAL COPIES

CONSULTANT shall furnish all deliverables in draft form, including electronic deliverables, for approval prior to submitting final copies. **The OWNER strongly encourages CONSULTANT to submit draft components for approval as early as possible and on an ongoing basis. OWNER also expects ongoing communication with CONSULTANT as the work progresses, to ensure compatibility of the product with the OWNER's requirements.** Any revisions made of aforementioned draft by the OWNER will be incorporated into the product and resubmitted to the OWNER as a draft until the draft is considered complete and approved.

ATTACHMENT E: COST SCHEDULE

E.1 FIXED NOT-TO-EXCEED PRICE

Price is to be negotiated upon selection of CONSULTANT.

E.2 FIXED UNIT COST PRICES

Unit costs are to be negotiated upon selection of CONSULTANT.

ATTACHMENT F: TIME SCHEDULE

- F.1 The successful CONSULTANT shall show in bar chart form, on a weekly schedule, the activities required to complete the SCOPE OF WORK as shown in this Agreement, based on a contract award of October 30, 2004 and approval to start WORK on November 15, 2004. All deliverables are due October 1, 2005. The OWNER may extend the contract for up to one (1) year beyond October 1, 2005 at OWNER's discretion.
- F.2 The bar chart shall show field time and office time (literature review and research, land records research, engineering and design, cultural/historic inventory and survey and report preparation, etc).
- F.3 Constraints and float allowed for in the bar chart should be identified and explained in the schedule. Considerations for weather, access and normal delays should be accounted for within the schedule.

ATTACHMENT G: SERVICES AND FACILITIES PROVIDED BY OWNER

OWNER shall provide any information that has been gathered in the initial field inventories. Specifically, the following items will be furnished to CONSULTANT or made available for CONSULTANT's use:

- a. Any site-specific information that OWNER has that would be helpful to CONSULTANT in accomplishing the WORK.
- b. OWNER representative, as available, to accompany CONSULTANT to the project area for orientation.
- c. Access to resources in OWNER's possession that may aid in the completion of the WORK, such as project and site files, correspondence, slides, photographs, and aerial photographs relating to the project area.
- d. Sample CD detailing required formats and submittals.

ATTACHMENT H: AMENDMENTS TO THE AGREEMENT

- H.1 Amendments to the Agreement shall be in the form of a change order, signed by both parties and identical in format to the change order included on the following page.
- H.2 Change orders shall become attached to and part of the Agreement under the terms of the Agreement with changes as stipulated on the change order. Change orders shall not release CONSULTANT from any other terms or conditions that apply and are a part of the Agreement.
- H.3 Any additional WORK must be authorized by OWNER and must be in the form of a contract change order as an amendment to the Agreement. The change order must be fully executed prior to CONSULTANT undertaking any additional WORK.

**STATE OF UTAH
CONTRACT AMENDMENT**

AMENDMENT # **to CONTRACT #**

TO BE ATTACHED TO AND MADE A PART OF the above numbered contract by and between the State of Utah, Division Of Oil, Gas And Mining, referred to as STATE and, , referred to as CONTRACTOR.

Project Name Project Number

THE PARTIES AGREE TO AMEND THE CONTRACT AS FOLLOWS:

- | | |
|---|---|
| 1. Contract period:
(original starting date)

(current ending date)

new ending date | 2. Contract amount:
(current contract amount)

(amendment amount)

new contract amount
(add current amount to amendment amount) |
|---|---|

3. Change Details:

Fund	Agency	Org	Approp. Unit	Activity (Mine)	Grant Category	Project or Job
100	560	2881	REG			

ITEM NO.	DESCRIPTION OF CHANGES IN QUANTITIES, UNIT PRICES, SCHEDULE, ETC.	INCREASE (DECREASE)
1.	DESCRIPTION OF CHANGES IN QUANTITIES, UNIT PRICES, SCHEDULE.	
2.	DESCRIPTION OF CHANGES IN QUANTITIES, UNIT PRICES, SCHEDULE.	
3.	DESCRIPTION OF CHANGES IN QUANTITIES, UNIT PRICES, SCHEDULE	
4.	SUBTOTAL	
5.	BONDS & INSURANCE (6% of Change Order Amount)	
6.	TOTAL AMOUNT OF CHANGE ORDER	

4. Effective Date of Amendment:

All other conditions and terms in the original contract remain the same.

IN WITNESS WHEREOF, the parties sign and cause the amendment to be executed.

Approved by Contract Rep: _____	Date: _____
Approved by AMR Admin: _____	Date: _____
Accepted by Contractor: _____	Date: _____
Approved by DOGM Budget Off: _____	Date: _____
Approved by DOGM Director _____	Date: _____
Approved by Div'n Purchasing: _____	Date: _____
Approved by Div'n of Finance: _____	Date: _____

Revised 7/12/94

ATTACHMENT I: KESSLER PROJECT-SPECIFIC INFORMATION

I.1 PROJECT AREA LOCATION

The Kessler Project area is located on the Mills Junction, Farnsworth Peak, Tooele, Bingham Canyon, Stockton, and Lowe Peak USGS 7½' quadrangles directly north and northeast of Tooele, in Tooele County, Utah. The project area, where elevations range from approximately 4,840 to 9,180 feet, takes in the westernmost reach of the central portion of Oquirrh Mountains, between I-80 and Settlement Canyon. The county boundary line for Tooele and Salt Lake counties forms the east boundary of the project area. The southern boundary of the project area is formed by the ridgeline between Middle and Settlement Canyons. State Route 36 between I-80 and Tooele defines the west boundary of the project area. The north boundary is defined by I-80. The majority of the mine sites are located on the west-facing slopes above the town of Stockton and Tooele in Spring, Dry, Middle, Pine, Pole, Settlement, Swenson's, Pass, Flood, Bates, Coyote, Big, Rogers and Black Rock canyons.

The Kessler Project area takes in all or portions of the following sections:

T4S, R3W, Sections 4-9, 16-17
T4S, R4W, Sections 1-5, 7-18, NW ¼ NW ¼ NW ¼ 19, and N ½ NW ¼ 20
T3S, R3W, Sections 4-9, 16-21, 28-32
T3S, R4W, Sections 1-3, 10-15, 22-27, 33-36
T2S, R3W, Sections 5-8, 17-20, 29-32
T2S, R4W, Sections 1&2, 10-15, 22-27, 34-36
T1S, R3W, Sections 19, 29-32
T1S, R4W, Section 36

General reclamation area boundaries of the Kessler Project are shown on the location map at the end of this Attachment and are described in this section. Mine openings are not evenly distributed in this area.

To access the Kessler Project area from the center of Tooele (junction of Main and Vine streets) take Highway 36 to East Vine Street. Turn east to Middle Canyon Road. Up canyon from Tooele, the road is a maintained 2-wheel-drive gravel road. In general, the terrain is steep and rugged. Most of the sites will be accessible by either four-wheel-drive vehicles or by all-terrain vehicles (ATVs). Some of the sites will require foot access to reach the actual openings.

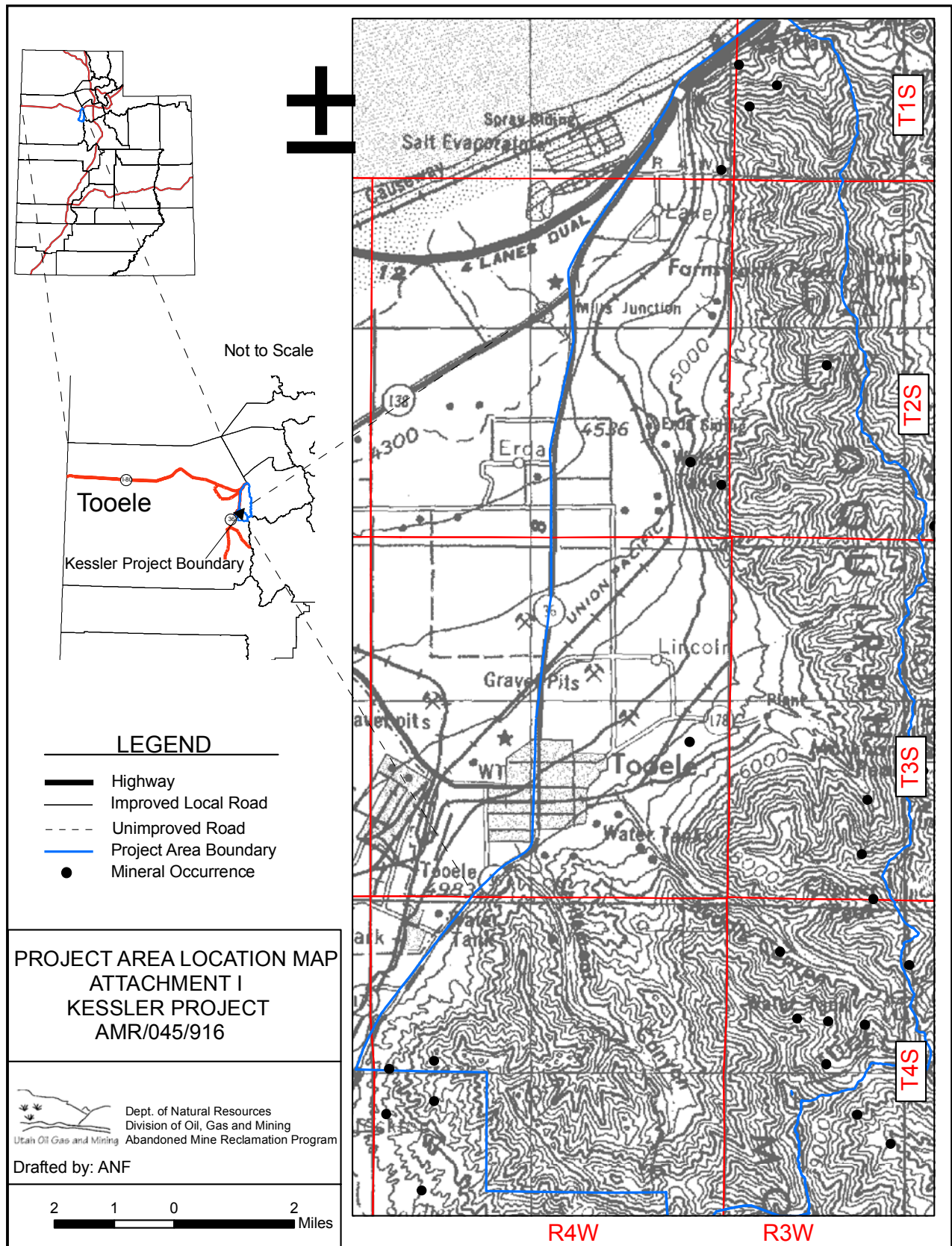
I.2 PROJECT AREA DESCRIPTION

The Kessler Project area consists of an approximate projected estimate created by utilizing USGS Quad map symbols, prospects and mineral occurrences of 33 abandoned, hard-rock metal mine openings in the central Oquirrh Mountains. The sites are located in variable terrain; some are in the flats, some in the foothills and some in steep rugged topography. All of the mine openings in the project area are expected to be small in aerial extent and disturbance to the surrounding topography. General reclamation area boundaries of the Kessler Project are shown on the attached location map.

To reach the suspected ore, the miners drove numerous adits, inclines, shafts, prospect pits, and trenches in areas of little or no easy access. Cultural features may remain at several of the sites. The city of Tooele is located just west of the project boundary. All services are available.

The historic Tooele townsite is located within the project boundary.

This is the eighth abandoned mine reclamation project in this area. OWNER will provide any information about the previous projects that is useful to plan this WORK.



ATTACHMENT J: NORTH TINTIC PROJECT-SPECIFIC INFORMATION

J.1 PROJECT AREA LOCATION

The North Tintic Project area is located on the Fivemile Pass, Goshen Pass, Lofgreen, Boulter Peak, Allens Ranch, Goshen Valley North, Sabie Mountain, Tintic Junction, Eureka and Goshen USGS 7½' quadrangles directly north of Eureka, in Juab, Utah and Tooele Counties, Utah. Located in the northwestern portion of the East Tintic Mountains, elevations in the project area range from approximately 5,990 to 8,100 feet. State Route 36 and the Rail Road Bed Road to where it intersects State Route 73 form the northern and western boundaries of the project area. The north boundary is State Route 73 between the rail road bed and Camp Floyd Historic Site. The east boundary runs south from Camp Floyd over to State Route 68. The south boundary is State Route 6 to where it intersects with State Route 36.

The North Tintic Project area takes in all or portions of the following sections:

T10S, R4W, Sections 1, 12 & 13
T10S, R3W, Sections 1-12, 14-23, 27
T10S, R2W, Sections 1-11
T10S, R1W, Sections 5-8
T9S, R4W, Sections 1 & 2, 10-15, 22-27, 35 & 36
T9S, R3W, All Sections
T9S, R2W, All Sections
T9S, R1W, 5-8, 17-20, 29-32
T8S, R4W, Sections 25, 35 & 36
T8S, R3W, All Sections
T8S, R2W, Sections 5-8, 13-36
T8S, R1W, Sections 28-32
T7S, R3W, Sections 1-3, 9-16, 21, 28, 33-36
T7S, R2W, Sections 5-8, 17-20, 39-32
T6S, R2W, Sections 31 & 32

General reclamation area boundaries of the North Tintic Project are shown on the location map at the end of this Attachment. Mine openings are not evenly distributed in this area.

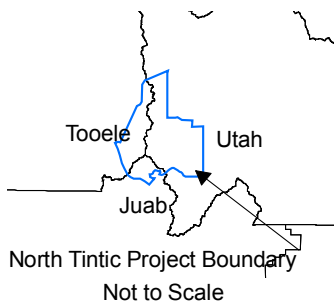
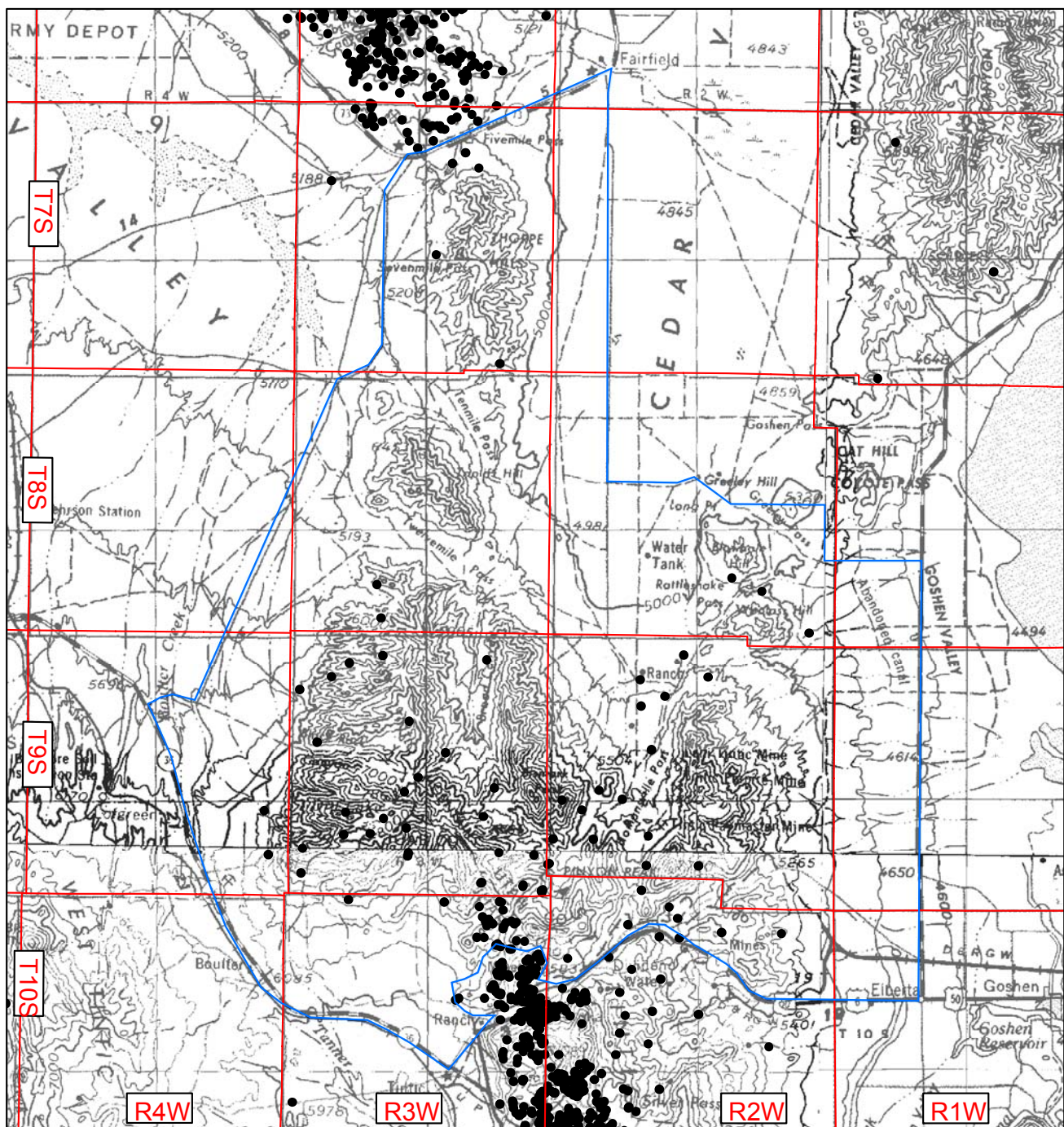
The North Tintic Project area may be accessed directly from Eureka or by roads that lead to North Tintic or Silver City. In general, the terrain is steep and rugged. Most of the sites will be accessible by either four-wheel-drive vehicles or by all-terrain vehicles (ATVs). Some of the sites will require foot access to reach the actual openings.

J.2 PROJECT AREA DESCRIPTION

The North Tintic Project area consists of an approximate projected estimate created by utilizing USGS Quad map symbols, prospects and mineral occurrences of **332** abandoned, hard-rock metal mine openings in the northwestern portion of the East Tintic Mountains. The sites are located in variable terrain; some are in the flats, some in the foothills and some in steep rugged topography. Most of the mine openings in the project area are expected to be small in aerial extent and disturbance to the surrounding topography.

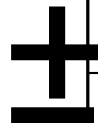
To reach the suspected ore, the miners drove numerous adits, inclines, shafts, prospect pits, and trenches in areas of little or no easy access. Cultural features, such as wooden headframes, remain at several of the sites.

This is the fourth abandoned mine reclamation project in this area. OWNER will provide any information about the previous projects that is useful to plan this WORK. Goods and services including fuel, food, and lodging are available in Eureka. The communities of Mammoth and Silver City have few or no services.



LEGEND

- Highway
- Improved Local Road
- Unimproved Road
- Project Area Boundary
- Mineral Occurrence



4 2 0 4 Miles

PROJECT AREA LOCATION MAP ATTACHMENT J NORTH TINTIC PROJECT AMR/049/903

Dept. of Natural Resources
Division of Oil, Gas and Mining
Abandoned Mine Reclamation Program

Drafted by: ANF

APPENDIX A: CONSULTANT PERFORMANCE RATING FORM

CONSULTANT PERFORMANCE RATING

Utah Division of Oil, Gas and Mining
Abandoned Mine Reclamation Program

Consultant: _____

Project: _____ AMR/ 000 / 900

Contract Number: 02-0000

Rating: Satisfactory= 1; Unsatisfactory= 0

- _____ 1. Achieved the specified level of project quality and quantity.
- _____ 2. Prompt, diligent, and systematic prosecution of work.
- _____ 3. Adequate personnel (number and skill level).
- _____ 4. Adequate equipment (number, type, and operating condition).
- _____ 5. Effective management and supervision of work.
- _____ 6. Cooperation, responsiveness, and communication with project manager.
- _____ 7. Cooperation and timely response in negotiation of contract changes.
- _____ 8. Cooperation in negotiation of claims.
- _____ 9. Record of prompt payment for labor, materials, equipment, and subcontract work.
- _____ 10. On-time submission of necessary documents and reports.
- _____ 11. Compliance with all applicable federal, state, and local laws and regulations.
- _____ 12. Minimized the adverse effect of activities on the public and the environment.
- _____ 13. Cooperation with landowners and/or utilities.

_____ = **Total = Performance Rating**

Attach explanations of all "Unsatisfactory" ratings.

Rated by: _____
Utah AMR Project Manager

Date _____

Reviewed by: _____
Utah AMR Program Administrator

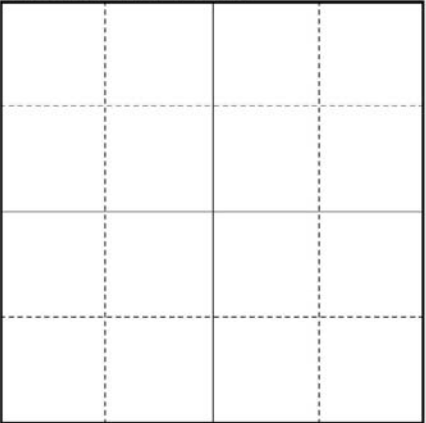
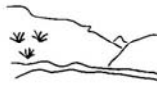
Date _____

A consultant with a Performance Rating (or average rating if there is more than one rating) of 9 or less fails to pre-qualify.

Rev 01/05/99

APPENDIX B: SAMPLE INVENTORY FORMS

B.1 Mine Opening Inventory Forms

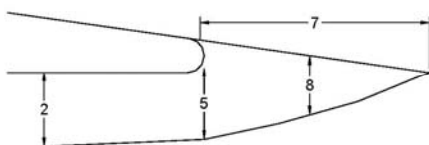
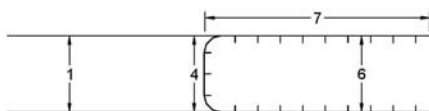
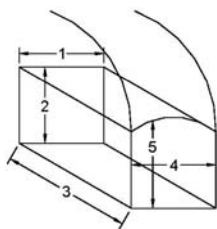
INVENTORY FORM		KESSLER PROJECT AMR/045/916																						
 <p style="font-size: small; margin-top: 10px;">Indicate the opening location in section.</p>		Tag Number _____																						
		Mine Name _____																						
		GPS File Number _____ County _____																						
		7.5' Quad Name _____ Elevation _____ ft																						
		Quarter Section <u> 1/4 </u> <u> 1/4 </u> <u> 1/4 </u> Slope Aspect _____																						
		CRIB Number _____ Commodity _____																						
Type: <input type="checkbox"/> Coal or <input checked="" type="checkbox"/> Non-coal																								
<p>OPENING TYPE</p> <p><input type="checkbox"/> HO _____ azimuth</p> <p><input type="checkbox"/> IO _____ azimuth _____ slope of incline</p> <p><input type="checkbox"/> VO <u> 0 </u> azimuth</p> <p><input type="checkbox"/> _____ other (use opening type codes)</p>		<p>ACCESS</p> <table border="1" style="width: 100%; border-collapse: collapse; font-size: small;"> <thead> <tr> <th style="text-align: left;">SITE</th> <th style="text-align: left;">OPENING</th> <th style="text-align: left;">TYPE</th> </tr> </thead> <tbody> <tr><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td>XC (x-country, no established trail)</td></tr> <tr><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td>FOOT (foot trail)</td></tr> <tr><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td>ATV (ATV/motorcycle trail or road)</td></tr> <tr><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td>4WHEEL (4-wheel drive road)</td></tr> <tr><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td>2WHEEL (2-wheel drive road)</td></tr> <tr><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td>PAVED (paved road)</td></tr> </tbody> </table>		SITE	OPENING	TYPE	<input type="checkbox"/>	<input type="checkbox"/>	XC (x-country, no established trail)	<input type="checkbox"/>	<input type="checkbox"/>	FOOT (foot trail)	<input type="checkbox"/>	<input type="checkbox"/>	ATV (ATV/motorcycle trail or road)	<input type="checkbox"/>	<input type="checkbox"/>	4WHEEL (4-wheel drive road)	<input type="checkbox"/>	<input type="checkbox"/>	2WHEEL (2-wheel drive road)	<input type="checkbox"/>	<input type="checkbox"/>	PAVED (paved road)
SITE	OPENING	TYPE																						
<input type="checkbox"/>	<input type="checkbox"/>	XC (x-country, no established trail)																						
<input type="checkbox"/>	<input type="checkbox"/>	FOOT (foot trail)																						
<input type="checkbox"/>	<input type="checkbox"/>	ATV (ATV/motorcycle trail or road)																						
<input type="checkbox"/>	<input type="checkbox"/>	4WHEEL (4-wheel drive road)																						
<input type="checkbox"/>	<input type="checkbox"/>	2WHEEL (2-wheel drive road)																						
<input type="checkbox"/>	<input type="checkbox"/>	PAVED (paved road)																						
<p>POSSIBLE CLOSURE TYPE <i>Check all that are possible.</i></p> <p><input type="checkbox"/> BFH (backfill, hand labor)</p> <p><input type="checkbox"/> BFM (backfill, heavy machinery)</p> <p><input type="checkbox"/> WALL-B (concrete block wall)</p> <p><input type="checkbox"/> WALL-S (native stone wall)</p> <p><input type="checkbox"/> BG (bat gate)</p> <p><input type="checkbox"/> BG-CMP (culvert bat gate)</p> <p><input type="checkbox"/> GRATE-B (shaft grate, grade-beam)</p> <p><input type="checkbox"/> GRATE-P (shaft grate, pinned)</p> <p><input type="checkbox"/> PUF (polyurethane foam)</p> <p><input type="checkbox"/> CONCRETE (concrete slab or plug)</p> <p><input type="checkbox"/> PROBE (probe for possible opening or voids)</p> <p><input type="checkbox"/> CUSTOM (standard closure designs not appropriate)</p>		<p>CONDITION OF ENTRANCE/COLLAR</p> <p><input type="checkbox"/> Completely collapsed, no access to workings</p> <p><input type="checkbox"/> Partially collapsed/sloughing at entrance/collar, workings visible but not accessible</p> <p><input type="checkbox"/> Partially collapsed/sloughing at entrance/collar, workings accessible</p> <p><input type="checkbox"/> Open for access with little or no collapse/sloughing</p> <p><input type="checkbox"/> Obstruction at opening makes evaluation of condition impossible</p> <p>Comment: _____</p>																						
<p>QUANTITY: _____ cu yds, or _____ sq ft</p>		<p>ENTRANCE/COLLAR SUPPORTS <i>Present? Yes / No</i></p> <p>Description: _____</p> <p>Removal necessary for recommended closure? <i>Yes / No</i></p>																						
<p>MATERIAL SOURCE <i>Sufficient for closure? Yes / No</i></p> <p><input type="checkbox"/> DUMP (mine dump) _____ cu yds</p> <p><input type="checkbox"/> SCALE (scale down from brow/adjacent slope)</p> <p><input type="checkbox"/> BLAST (blast from rock brow or adjacent face)</p> <p><input type="checkbox"/> STONE (stone suitable for bulkhead within 100 ft)</p> <p><input type="checkbox"/> NONEAVAIL (materials not present)</p>		<p>COMPETENCE OF OPENING/HOST ROCK</p> <p><input type="checkbox"/> Unconsolidated soil (unstable)</p> <p><input type="checkbox"/> Friable (unstable)</p> <p><input type="checkbox"/> Highly jointed, fractured (unstable)</p> <p><input type="checkbox"/> Somewhat jointed (fairly stable)</p> <p><input type="checkbox"/> Massive (stable, competent)</p> <p>Rock suitable for pinned anchors? <i>Yes / No</i></p>																						
 <p style="font-size: small; margin-top: 5px;">Utah Department of Natural Resources Division of Oil, Gas and Mining Abandoned Mine Reclamation Program</p>		<p>SITE VISITATION: <input type="checkbox"/> Low <input type="checkbox"/> Medium <input type="checkbox"/> High</p> <p>Evidence: _____</p>																						
Inventoried by: _____		Date inventoried: _____																						

KESSLER PROJECT AMR/045/916	
<u>CULTURAL FEATURES</u> <input type="checkbox"/> None observed <input type="checkbox"/> Entrance/collar supports <input type="checkbox"/> Mine rail/ore cars <input type="checkbox"/> Machinery/equipment <input type="checkbox"/> Structures Comments: _____	Tag Number _____ <u>HAZARDOUS MATERIALS</u> <input type="checkbox"/> None observed <input type="checkbox"/> Explosives <input type="checkbox"/> Hazardous chemicals Comments: _____
<u>WILDLIFE</u> <input type="checkbox"/> None observed <input type="checkbox"/> Bats present/evident <input type="checkbox"/> Birds present/evident <input type="checkbox"/> Cats present/evident <input type="checkbox"/> Herps present/evident <input type="checkbox"/> Other: _____ Comments: _____	<u>WATER</u> <input type="checkbox"/> No evidence of water <input type="checkbox"/> Evidence of periodic water (mud cracks, etc.) <input type="checkbox"/> Saturated soil <input type="checkbox"/> Standing water in opening <input type="checkbox"/> Discharge flowing from opening Comments: _____
<u>VEGETATION</u> Type/Comments: _____	<u>PALEO RESOURCES</u> Present? Yes / No Comments: _____
<u>WORKER SAFETY CONCERNS</u> (loose rock, etc.) Type/Comments: _____	
ACCESS DESCRIPTION: (road log from prominent point within project area)	
SITE DESCRIPTION:	

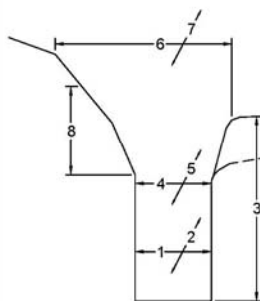
HORIZONTAL or INCLINED OPENING**KESSLER PROJECT**

AMR/045/916

Tag Number _____



	Feet
Inside Width	1 _____
Inside Height	2 _____
Inside Depth	3 _____
Workings extend beyond visible limits? Yes / No	
Crosscuts, other workings visible? Yes / No	
Opening Width at brow	4 _____
Opening Height at brow	5 _____
Faceup Trench Width	6 _____
Faceup Trench Length	7 _____
Faceup Trench Depth at brow	8 _____
Distance in from brow to possible gate/wall location	_____

VERTICAL OPENING

	Feet
Inside Width	1 _____
Inside Length	2 _____
Inside Depth	3 _____
Workings extend beyond visible limits? Yes / No	
Crosscuts, other workings visible? Yes / No	
Opening Width at base of collar	4 _____
Opening Length at base of collar	5 _____
Collar Width	6 _____
Collar Length	7 _____
Collar Depth	8 _____
Distance down from top of collar to possible shaft grate location	_____

NOTE: Dimensions listed here are representative and required for entry into the AMR database. Measurements collected in the field must be sufficient for closure design and should not be limited by those listed here.

CLOSURE RECOMMENDATION:

[illegible]

B.2 Sample INTERMOUNTAIN ANTIQUITIES COMPUTER SYSTEM (IMACS) Forms

1990

IMACS ENCODING FORM

To be completed for each site form.
For instructions and codes, see IMACS Users Guide.

Encoder's Name _____

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35																																			
State Site Number										Agency Site Number										Agency Report Number										Elevation																																							
1/4 1/4 1/4 1/4										Sec. T. R.										Mend.										Zone																																							
1/4 1/4 1/4 1/4										1/4 1/4 1/4 1/4										1/4 1/4 1/4 1/4										1/4 1/4 1/4 1/4																																							
Forest Dist./Park										Loc. Contained Materials										Cond.										Impacts										N.R.																													
Water distance/type										Geog. Unit										1st 2nd										Dep.										Vegetation																													
Culture/Dating Method										Area										Collected										Depth										Excav. Status																													
8										9										11										13										14																													
Lithic Tools: #/type										Flaking Stages										Ceramics: #/type										Features: #/type										Architectural: #/material/type																													
2										3										4										5										6																													
Historic Themes										Cultures / Dating Method										Dates										Area										Collected										Depth										Excav. Status									
14										15										16										17										18										19																			
Features: #/type										Architecture: #/material/type										Artifacts										Artifacts										Artifacts																													

IMACS SITE FORM

Part A - Administrative Data

INTERMOUNTAIN ANTIQUITIES COMPUTER SYSTEM

Form approved for use by

BLM - Utah, Idaho, Wyoming, Nevada

Division of State History - Utah, Wyoming

USFS - Intermountain Region

NPS - Utah, Wyoming

*1. State No. _____

*2. Agency No. _____

3. Temp. No. _____

4. State _____ County _____

5. Project _____

*6. Report No. _____

7. Site Name / Property Name _____

8. Class ☐ Prehistoric ☐ Historic ☐ Paleontologic ☐ Ethnographic

9. Site Type _____

*10. Elevation _____ ft.

*11. UTM Grid Zone _____ m E _____ m N

*12. _____ of _____ of _____ of Section _____ T. _____ R. _____

*13. Meridian _____

*14. Map Reference _____

15. Aerial Photo _____

16. Location and Access _____

*17. Land Owner _____

*18. Federal Administrative Units _____

*19. Location of Curated Materials _____

20. Site Description _____

*21. Site Condition ☐ Excellent (A) ☐ Good (B) ☐ Fair (C) ☐ Poor (D)

*22. Impact Agent(s) _____

*23. National Register Status ☐ Significant (C) ☐ Non-Significant (D) ☐ Unevaluated (Z)

Justify _____

24. Photos _____

25. Recorded by _____

*26. Survey Organization _____ *28. Survey Date _____

27. Assisting Crew Members _____

List of Attachments: ☐ Part B ☐ Topo Map ☐ Photos ☐ Continuation Sheets
☐ Part C ☐ Site Sketch ☐ Artifact/Feature Sketch ☐ Other: _____
☐ Part E

*Encoded data items

BLM 8100-1
FS R-4 2300-2
3/90

Part A - Environmental Data

- *29. Slope _____ (Degrees) _____ Aspect (Degrees)
- *30. Distance to Permanent Water _____ x 100 Meters
 *Type of Water Source ☐ Spring/Seep (A) ☐ Stream/River (B) ☐ Lake (C) ☐ Other (D)
 Name of Water Source _____
- *31. Geographic Unit _____
- *32. Topographic Location - See Guide for additional information

PRIMARY LANDFORM

- ☐ Mountain spine (A)
☐ Hill (B)
☐ Tableland/Mesa (C)
☐ Ridge (D)
☐ Valley (E)
☐ Plain (F)
☐ Canyon (G)
☐ Island (H)

- ☐ Alluvial fan (A)
☐ Alcove/Rock Shelter (B)
☐ Arroyo (C)
☐ Basin (D)
☐ Cave (E)
☐ Cliff (F)
☐ Delta (G)
☐ Detached Monolith (H)

SECONDARY LANDFORM

- ☐ Dune (I)
☐ Floodplain (J)
☐ Ledge (K)
☐ Mesa/Butte (L)
☐ Playa (M)
☐ Port. Geo. Feature (N)
☐ Plain (O)
☐ Ridge/Knoll (P)
☐ Slope (Q)
☐ Terrace/Bench (R)
☐ Talus Slope (S)
☐ Island (T)
☐ Outcrop (U)
☐ Spring Mound/Bog (V)
☐ Valley (W)
☐ Cutbank (X)
☐ Riser (Y)
☐ Multiple S. Landforms (1)
☐ Bar (2)
☐ Lagoon (3)
☐ Ephemeral Wash (4)
☐ Kipuka (5)
☐ Saddle/Pass (6)
☐ Graben (7)

Describe _____

- *33. On-site Depositional Context

- ☐ Fan (A) ☐ Outcrop (Q) ☐ Moraine (J) ☐ Desert Pavement (P)
☐ Talus (B) ☐ Extinct Lake (F) ☐ Flood Plain (K) ☐ Stream Bed (R)
☐ Dune (C) ☐ Extant Lake (G) ☐ Marsh (L) ☐ Aeolian (S)
☐ Stream Terrace (D) ☐ Alluvial Plain (H) ☐ Landslide/Slump (M) ☐ None (T)
☐ Playa (E) ☐ Colluvium (I) ☐ Delta (N) ☐ Residual (U)

Description of Soil _____

34. Vegetation

*a. Life Zone

- ☐ Arctic-Alpine (A) ☐ Hudsonian (B) ☐ Canadian (C) ☐ Transitional (D) ☐ Upper Sonoran (E) ☐ Lower Sonoran (F)

*b. Community

- Aspen (A)
 Spruce-Fir (B)
 Douglas Fir (C)
 Alpine Tundra (D)
 Ponderosa Pine (E)
 Lodgepole Pine (F)

- Primary On-Site _____
 Other/Mixed Conifer (G)
 Pinyon-Juniper Woodland (H)
 Wet Meadow (I)
 Dry Meadow (J)
 Oak-Maple Shrub (K)
 Riparian (L)

- Secondary On-Site _____
 Grassland/Steppe (M)
 Desert Lake Shore (N)
 Shadscale Community (O)
 Tall Sagebrush (P)
 Low Sagebrush (Q)
 Barren (R)

- Surrounding Site _____
 Marsh/Swamp (S)
 Lake/Reservoir (T)
 Agricultural (U)
 Blackbrush (V)
 Creosote Bush (Y)

Describe _____

- *35. Miscellaneous Text _____

36. Comments/Continuations _____

Part B - Prehistoric Sites

Site No.(s) _____

*11. Ceramic Artifacts	#	TYPE	#	TYPE
	_____	_____	_____	_____
	_____	_____	_____	_____
	_____	_____	_____	_____
	_____	_____	_____	_____

Describe _____

12. Maximum Density - # / sq m (ceramics) _____

*13. Non-Architectural Features (locate on site map) - See Guide for additional categories

- | | | | |
|--|--|---|---|
| <input type="checkbox"/> Hearth/Firepit (HE) | <input type="checkbox"/> Rubble Mound (RM) | <input type="checkbox"/> Earthen Mound (EM) | <input type="checkbox"/> Water Control (WC) |
| <input type="checkbox"/> Midden (MD) | <input type="checkbox"/> Stone Circle (SC) | <input type="checkbox"/> Burial (BU) | <input type="checkbox"/> Petroglyph (PE) |
| <input type="checkbox"/> Depression (DE) | <input type="checkbox"/> Rock Alignment (RA) | <input type="checkbox"/> Talus Pit (TP) | <input type="checkbox"/> Pictograph (PI) |

Describe _____

*14. Architectural Features (locate on site map)

#	MATERIAL	TYPE	#	MATERIAL	TYPE
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____

Describe _____

15. Comments / Continuations

Part C - Historic SitesSite No.(s) _____

1. Site Type _____

*2. Historic Theme(s) _____

CULTURAL AFFILIATION _____ DATING METHOD _____

CULTURAL AFFILIATION _____ DATING METHOD _____

*3. Culture _____
Describe _____*4. Oldest Date _____ Recent Date _____
How Determined? _____

5. Site Dimensions _____ m X _____ m *Area _____ sq m

*6. Surface Collection/Method ☐ None (A) ☐ Designed Sample (C)
☐ Grab Sample (B) ☐ Complete Collection (D)
Sampling Method _____*7. Estimated Depth of Cultural Fill ☐ Surface (A) ☐ 20 - 100 cm (C) ☐ Fill noted but unknown (E)
☐ 0 - 20 cm (B) ☐ 100 cm + (D) ☐ Depth suspected, but not tested (F)
How Estimated _____
(if tested, show location on site map)*8. Excavation Status ☐ Excavated (A) ☐ Tested (B) ☐ Unexcavated (C)
Testing Method _____*9. Summary of Artifacts and Debris (Refer to Guide for additional categories)
☐ Glass (GL) ☐ Bone (BO) ☐ Leather (LE) ☐ Ammunition (AM) ☐ Domestic Items (DI)
☐ Metal (ME) ☐ Ceramics (CS) ☐ Wire (WI) ☐ Wood (WD) ☐ Kitchen Utensils (KU)
☐ Nails (NC, NW) ☐ Fabric (FA) ☐ Tin Cans ☐ Rubber (RB) ☐ Car / Car Parts (CR)
Describe _____

10. Ceramic Artifacts	PASTE	GLAZE/ SLIP	DECO- RATION	PATTERN	VESSEL FORM(S)	#

a. Estimated Number of Ceramic Trademarks
Describe __________

_____BLM 8100-1
FS R-4 2300-2
3/90

Part C - Historic SitesSite No.(s) _____

11. Glass	#	MANUFACTURE	COLOR	FUNCTION	TRADEMARKS	DECORATION
	_____	_____	_____	_____	_____	_____
	_____	_____	_____	_____	_____	_____
	_____	_____	_____	_____	_____	_____
	_____	_____	_____	_____	_____	_____
	_____	_____	_____	_____	_____	_____

Describe _____

12. Maximum Density - #/sq m (glass and ceramics)

13. Tin Cans					
Type	Opening	Size	Modified	Label/Mark	Function
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____

Describe _____
_____*14. Landscape and Constructed Features (locate on site map) - *See Guide for additional categories*

- ☐ Trail/Road (TR) ☐ Dump (DU) ☐ Dam, Earthen (DA) ☐ Hearth/Campfire (HE)
☐ Tailings (MT, ML) ☐ Depression (DE) ☐ Ditch (DI) ☐ Quarry (QU)
☐ Rock Alignment (RA) ☐ Cemetery/Burial (CB) ☐ Inscriptions (IN) ☐ Other (OT) _____

Describe _____

*15. Buildings and Structures (locate on site map)

#	MATERIAL	TYPE	#	MATERIAL	TYPE
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____

Describe _____

_____16. Comments/Continuations - *Please make note of any Historic Record searches performed (for example - County Records, General Land Office, Historical Society, Land Management Agency Records, Oral Histories/Interviews)*

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APPENDIX C: PROJSUMMARY AND CODE DEFINITIONS TABLES

FIELD NAME		FIELD DESCRIPTION	
A	TAG NUMBER	Unique identifier for each opening formatted as follows: 1-digit Quadrant number + 2-digit township + 2-digit range + 2-digit section + 2-letter opening type + 3-digit sequential opening number (e.g., 4230232HO001).	AMR DATABASE AMRadmin Table
	TYPE	"C" = Coal, "N" = Non-coal.	
	MINE NAME	Legitimate mine name from literature (e.g., Copper King No. 1). If none, leave blank.	
	PROJECT NUMBER	AMR + county number + sequential number (e.g., AMR/045/912).	AMR DATABASE AMRadmin Table
B	OPENING TYPE	Two-letter code indicating type of mine opening (e.g, HO). See codes below.	
C	LANDOWNER	Code indicating land status of surface (e.g., PRIVATE). See codes below.	
	INVENTORY PHOTOGRAPH	Representative inventory photograph formatted as follows: Folder name = AMR Project number; Filename = Tag Number + "i" suffix (for inventory)+ sequential number indicating multiple photographs of the same opening + jpg (e.g., AMR045912\4230232HO001i1.jpg).	AMR DATABASE AMRadmin Table
	COMMENT	Miscellaneous comments (e.g.,	
	COUNTY	County name (e.g, Tooele)	
	7.5' QUAD NAME	USGS 7.5' quad name (e.g., Stockton).	AMR DATABASE Location Table
	TOWNSHIP	Township number followed by N for North or S for South and no spaces (e.g., 23S).	
	RANGE	Range number followed by E for East or W for West and no spaces (e.g., 02E).	
	SECTION	Two-digit section number. Use a leading zero for numbers 1-9 (e.g., 32)	AMR DATABASE Location Table
	QUARTER SECTION	Quarter section info without spaces (e.g., NW4SE4NE4).	
	UTM X	UTM X coordinate (easting) with no decimal places or commas (e.g., 389941).	
	UTM Y	UTM Y coordinate (northing) with no decimal places or commas (e.g., 4478488).	AMR DATABASE Engineering Table
	SOURCE	How was mine location (UTM) determined, by GPS or on-screen digitizing (e.g., digitized)?	
	DATE INVESTIGATED	Date of inventory investigation used for final engineering designs (e.g., 08/22/2002)	
	AZIMUTH	Azimuth for horizontal features determined by looking into the opening, 0 for all vertical features and non-zero for HO, HC, IO (e.g., 215).	AMR DATABASE Engineering Table
	INSIDE WIDTH	Width in feet of adit, shaft, etc. inside of opening (e.g., 8 ft).	
	INSIDE HEIGHT	Height in feet of adit or second dimension of shaft inside of opening (e.g., 5 ft).	
	INSIDE DEPTH	Length in feet of adit or depth of shaft (e.g., 45 ft). Enter "Yes" in next field if you cannot see the end.	AMR DATABASE Engineering Table
	PLUSLENGTH	Yes or No, does the opening extend beyond visible limits (e.g., No)?	
	OPENING WIDTH	Representative value for opening width at brow (e.g., 6 ft).	
	OPEN HEIGHT	Representative value for opening height at brow or second dimension of shaft (e.g., 8 ft).	AMR DATABASE Engineering Table
	FACEUP/COLLAR WIDTH	Representative value for width of adit face-up trench or surface width of shaft collar (e.g., 15 ft).	
	FACEUP/COLLAR LENGTH	Representative value for length of adit face-up trench or second surface dimension of shaft collar (e.g., 85 ft).	
	FACEUP/COLLAR DEPTH	Representative value for height of adit face-up trench or depth of shaft collar (e.g., 10 ft).	AMR DATABASE Engineering Table
	ELEVATION	Elevation of the opening (e.g., 7,680 ft).	
	RAD_ALPHA	Alpha radiation reading in working levels (e.g., 1.2 WL).	
	RAD_GAMMA	Gamma radiation reading in micro REMs per hour (e.g., 160 µR/h).	AMR DATABASE Engineering Table
D	SITE ACCESS	Access to the site is to the base of the dump, close proximity or within 100 feet (e.g., 2WHEEL). See codes below. This field should describe the site access as it stands without any improvements.	
D	OPENING ACCESS	Access to the opening is right to the entrance itself (e.g., XC). See codes below. This field should describe the opening access as it stands without any improvements.	
E	IF_CLOSURE TYPE	Recommended closure type (e.g., BFM). See codes below. Data from inventory form as listed in the closure schedule. Structures built in adits or over shafts should have their own Tag Number with the "ES" feature type, so they will received their own reclamation method code.	AMR DATABASE Engineering Table
	IF_QUANTITY	Closure material quantity data from inventory form in cubic yards or square feet (e.g., 6 cy).	
F	IF_MATERIAL SOURCE	Source of closure material (e.g., DUMP).	
	IF_CULTURAL FEATURES	Cultural Features Present. Data from inventory form.	AMR DATABASE Engineering Table
	IF_WILDLIFE	Wildlife Present. Data from inventory form.	
	IF_HAZARDS	Hazards Present. Data from inventory form.	
	IF_WATER	Water Present. Data from inventory form.	AMR DATABASE Engineering Table
	IF_PALEO	Paleontological resources present. Data from inventory form.	
	MINE GROUP NAME	Reclamation mine group name as defined in the specifications (e.g., Stockton Group).	
	MAP SHEET	Reference number of map sheet on which the opening is located (e.g., 1E)	AMR DATABASE Engineering Table
	LABEL	Opening type + opening number, without leading zeros (e.g., HO2).	

OWNER NUMBER	Sequential number assigned to facilitate cross-referencing (e.g., 1).	Ownership Table
OWNER NAME	Name of owner (e.g., John D. Stevenson, Joint Trust).	
QUARTER SECTION	Quarter section information with no spaces (e.g., NWSENE).	
COUNTY	County name (e.g., Tooele).	
OWNER TYPE	S = surface ownership, M = minerals ownership, B = both surface and minerals ownership	
LAND ACQUIRED	Date land was acquired by the current owner (e.g., 01/06/1979).	
CLAIM NAME	Name of claim (e.g., Copper King)	
CLAIM TYPE	P = patented claim, U = unpatented claim.	
LAND NUMBER	MS, Lot, UMC or Parcel number (e.g., MS5128).	
MAP SHEET	Reference number for map sheet on which the claim is located (e.g., 1R).	
PERCENT OWNER	Owner's percent ownership of a claim or parcel (e.g., 50%).	
TITLE INFO	Book and page number of the title document (e.g., 12, 215).	

A TAG NUMBER

4230412HO001 is translated as:

4 = Quadrant within the state. Salt Lake Base Meridian: NE = 1, NW = 2, SW = 3, SE = 4; Uinta Special Meridian: NE = 5, NW = 6, SW = 7, SE = 8.

23 = Two-digit township number.* Based on the quadrant number of 4, this would be T23S.

04 = Two-digit range number.* Based on the quadrant number of 4, this would be R04E.

12 = Two-digit section number.

HO = Two-letter opening type code.

001 = Three-digit sequential number within the section.

*For townships and ranges that are "halves," the numbers will be assigned as follows. Since there are fewer than 50 townships and ranges, simply add 50 to the township or range number. The 5 in '50' indicates that you're dealing with a 'half' and all you have to do then is mentally subtract 50 to get the correct township or range number.

Township Halves	Township renumbered	Range Halves	Range renumbered
1.5S	51S	1.5E	51E
11.5S	61S	8.5E	58E
15.5S	65S	17.5E	67E
19.5S	69S	1.5W	51W
20.5S	70S	2.5W	52W
28.5S	78S	4.5W	54W
29.5S	79S	5.5W	55W
30.5S	80S	6.5W	56W
32.5S	82S	8.5W	58W
35.5S	85S	9.5W	59W
37.5S	87S	10.5W	60W
38.5S	88S	14.5W	64W
40.5S	90S		

B OPENING TYPE CODES (codes in gray are not typically used)

HO	Horizontal Opening (adit)	Open adit or tunnel that, due to depth and/or stability of the host rock, is considered to be a hazard. Inventory forms, photos, and GPS point location required.
HC	Horizontal Closed Feature (once extended further)	Adit or tunnel that was once open but is now closed by man or nature. It is often possible to determine whether it was once deeper by looking at the size of the dump. These features should be photographed and logged as points with the GPS. Inventory forms are required only if HC is hazardous and therefore requires reclamation action.
HP	Horizontal Prospect (never extended further)	This is a feature that may look the same as an HC, but by the dump size you can see that it has never been any deeper. Horizontal prospect refers to features that pose NO hazard. These features may be open adits or tunnels that are short enough to pose NO hazard. These features should be photographed and logged as points with the GPS, but no inventory forms are required.
VO	Vertical Opening (shaft)	Open shaft that is deep enough to be a hazard, meaning a person could not walk out if he or she fell in. Inventory forms, photos, and GPS point locations are required.
VC	Vertical Closed Feature (was once deeper)	Vertical opening that is caved shut by man or nature. You can often determine whether it was once deeper by looking at the size of the dump. These features should be photographed and logged with the GPS as point locations. Inventory forms are required only if VC is hazardous and therefore requires reclamation action.
VP	Vertical Prospect (was never deeper)	Small pit that may look like a VC, but by the dump size you can see that it has never been any deeper. These features are shallow enough to pose NO hazard, meaning a person could walk out of it if he or she were to fall in. These features should be photographed and logged as point locations with the GPS, but no inventory forms are required.

IO	Inclined Opening	Mine opening that is clearly not horizontal or vertical but inclined. There is no IC or IP designation because when the feature is closed or very shallow, it is difficult to tell whether it was horizontal, inclined, or vertical. Inventory forms, photos, and GPS point locations are required.
SH	Subsidence Hole	Typically vertical openings that have subsided into mine workings. Inventory forms required only if feature is hazardous and requires reclamation action, otherwise feature needs only to be photographed and logged with the GPS as point locations.
PI	Open Pit	These are large open pits or excavations. They may or may not have dangerous highwalls. Inventory forms required only if feature is hazardous and requires reclamation action, otherwise feature needs only to be photographed and logged with the GPS as <u>polygons</u> .
ES	Equipment & Structures	Where structures and equipment are inseparable from mining features, they should be photographed and logged as point locations with the GPS, but no inventory forms are required. Where structures and equipment are separated from the areas of mining activity, recordation is optional. Structures and equipment may or may not be hazardous.
DH	Drill Hole	
WP	Dangerous Pile & Embankment	
CS	Clogged Streams	
CL	Clogged Stream Lands	
DW	Dangerous Highwall	
DS	Dangerous Slide	
UF	Underground Mine Fire	
SB	Surface Burning	
WB	Hazardous Water Body	
WA	Polluted Water: Agricultural & Industrial	
WH	Polluted Water: Human Cons	
DI	Dangerous Impoundments	
IW	Industrial & Residential Waste	
MO	Mine Openings	
GO	Gobs	
SA	Spoil Area	
DP	Piles & Embankments	
SP	Slump	
HW	Highwall	
HR	Haul Road	
BE	Bench	
EF	Equipment Facilities	
SL	Slurry	
WT	Water Problems	
OT	Other	
TA	Mill Tailings Area	

C LANDOWNER CODES

US-BLM	Federal Land Administered by the Bureau of Land Management
US-FS	Federal Land Administered by the Forest Service
US-NPS	Federal Land Administered by the National Park Service
ST-PARK	Utah State Park
ST-SITLA	Utah State Institutional and Trust Lands Administration
COUNTY	County Land
MUNICIPAL	Municipal Land
PRIVATE	Private Land

D SITE/OPENING ACCESS TYPE CODES

XC	Cross-country traverse with no established trail or road.
FOOT	Defined or established foot-trail.
ATV	ATV and/or motorcycle trail or road.
4WHEEL	Unpaved 4-wheel drive road; not typically maintained and only suitable for a high clearance vehicle in all or part; not suitable for a passenger car.
2WHEEL	Unpaved 2-wheel drive road; typically maintained and suitable for a low clearance vehicle such as a passenger car.
PAVED	Paved road.

E CLOSURE TYPE CODES (IF RECLAMATION METHOD)

BFH	Backfill (hand labor)
BFM	Backfill (heavy machinery)
BF	Backfill (method unspecified or unknown)
Wall-B	Concrete Block Wall (+/- pillaster)
Wall-B/BFH	Block wall + hand backfill
Wall-B/BFM	Block wall + machine backfill
Wall-B-x	Block wall + secondary method
Wall-S	Native stone wall
Wall-S/BFH	Stone wall + hand backfill
Wall-S/BFM	Stone wall + machine backfill
Wall-S-x	Stone wall + secondary method
BG	Bat gate (manganal steel)
BG-x	Bat gate + secondary method
BG-cmp	Culvert bat gate
Grate-B	Rebar shaft grate (grade-beam, +/- I-beam)
Grate-P	Rebar shaft grate (pinned)
PUF	Polyurethane foam
Door	Adit door
NET	Cable net
Steel Fab	Grates, doors, panels, etc. fabricated with steel
Concrete	Concrete slab or plug
Probe	Probe only, no further closure
Compound Custom	More than one type used
Custom	Non-standard design
Demolition	Demolition of structure

F MATERIAL SOURCE CODES

DUMP	Mine dump.
SCALE	Scale rock down from brow and/or adjacent hillslope.
BLAST	Blast rock down from brow or adjacent face of mine feature.
STONE	Stone suitable for bulkhead located within 100 ft of mine site.
NONE	No materials available on or near site.

APPENDIX D: LAYER DEFINITIONS

Shapefiles or coverages shall be in a format compatible with ArcView 3.2a or ArcGIS 8.1. Datasets shall be projected in the NAD83 datum and must be in UTM coordinates for Zone 12 North. Each shapefile submitted by CONSULTANT, if using ArcView, shall be accompanied by an ArcView legend file (.avl) of the same name that symbolizes the data as show on the project maps. ArcMap layers store the symbol information in the .mxd document, so no legend file is necessary. ArcView shapefiles shall be located in the GISproj folder of the directory structure as described in Appendix E.

PROJBOUND.SHP (polygon)

Aerial extent of completed inventory.

FIELDNAME	FIELD LENGTH	FIELD TYPE	FIELD DESCRIPTION	EXAMPLE
NAME	25	String	Project name	Kessler
AMR_NUMBER	15	String	AMR + County number + Sequential number	AMR/045/916
TYPE	16	String	Coal or Non-coal (C for Coal, N for Non-coal)	N
ACRES	16	Number	Project area acreage	15,799

PROJMINES.SHP (point)

All inventoried mine features.

FIELDNAME	FIELD LENGTH	FIELD TYPE	FIELD DESCRIPTION	EXAMPLE
TAGNUM	18	String	Unique identifier for each opening. Quadrant number + township + range + section + opening type + sequential opening number in section	4230232HO001
OPENTYPE	5	String	Two-letter code indicating type of mine opening. See codes in Appendix C-B.	HO
AZIMUTH	5	Number	Azimuth of horizontal features (looking into the opening, zero for VO, VC, VP, SH, PI, ES and non-zero for HO, HC HP, IO)	215
ROTATION	4	Number	ROTATION = (630 – AZIMUTH); used because ArcView rotates symbols counterclockwise from East (90 degrees) while azimuths are determined clockwise from North (0 degrees).	415
LABEL	6	String	Opening type + opening number without leading zeros.	HO1
POLY	3	String	Is there an associated polygon perimeter for this feature? Y / N	N

PROJPOLY.SHP (polygon)

Aerial extent of mine features with diameters of greater than approximately 50 feet.

FIELDNAME	FIELD LENGTH	FIELD TYPE	FIELD DESCRIPTION	EXAMPLE
TAGNUM	18	String	Unique identifier for each opening. Quadrant number + township + range + section + opening type + opening number	4230232PI001
OPENTYPE	5	String	Two-letter code indicating type of mine opening. See codes in Appendix C-B.	PI
LABEL	6	String	Opening type + opening number (without leading zeros) Example HO2	PI1
ACRES	16	Number	Polygon acreage	2.1

PROJROADS.SHP (line)

Access routes to hazardous mine features that do not already exist in a digital format in the 1:24,000 scale roads and trails dataset (GISstate\SGID\st024\trds.shp). This shapefile should also contain the GPS-located access routes for equipment that have been surveyed and approved by the archaeologist.

FIELDNAME	FIELD LENGTH	FIELD TYPE	FIELD DESCRIPTION	EXAMPLE
TYPE	10	String	Access type code. This field should describe the access route as it stands without any improvements. See codes in Appendix C-D.	XC

PROJACCESS.SHP (line)

This shapefile will contain the GPS-located access routes for equipment that have been surveyed and approved by the archaeologist.

<i>FIELDNAME</i>	<i>FIELD LENGTH</i>	<i>FIELD TYPE</i>	<i>FIELD DESCRIPTION</i>	<i>EXAMPLE</i>
TYPE	10	String	Access type code. This field should describe the access route as it stands without any improvements. See codes in Appendix C-D.	XC

PROJSHEETS.SHP (polygon)

Aerial extent of each map sheet.

<i>FIELDNAME</i>	<i>FIELD LENGTH</i>	<i>FIELD TYPE</i>	<i>FIELD DESCRIPTION</i>	<i>EXAMPLE</i>
SHEETNUM	16	String	Map sheet reference number.	3R
TYPE	3	String	E / R, where E denotes engineering maps and R denotes realty maps.	R
LABEL	25	String	Map sheet label as it appears on title block.	Sheet 1E of 8E

PROJOWNERSHIP.SHP (polygon)

Aerial extent of each claim and private parcel in the project area.

<i>FIELDNAME</i>	<i>FIELD LENGTH</i>	<i>FIELD TYPE</i>	<i>FIELD DESCRIPTION</i>	<i>EXAMPLE</i>
CLAIM_NAME	26	String	Name of claim	Copper King
LAND_NUM	26	String	MS, Lot, UMC or Parcel number	MS5128
OWNER_NUM	3	Number	Sequential number assigned to facilitate cross referencing	1
OWNER_NAME	36	String	Name of owner	John D. Stevenson, Joint Trust

APPENDIX E: DIRECTORY STRUCTURE

CONSULTANT shall organize a final data CD containing all digital format deliverables in the manner listed below. Folder names are in **bold** type and file names are in *italics*. All instances of “*Proj*” or “*Project*” shall be replaced with the actual project name (e.g., Kessler.apr).

Project.apr
Template.def
UOGMlogo.tif

Engineering

InventoryForm2002.pub
ProjCostEstimate.doc
ProjReport.doc
ProjSummary.xls

BidPackage

ClosureDrawings.pdf

Cultural/Historic

GISproj

ProjBound.avl
ProjBound.shp
ProjMines.avl
ProjMines.shp
ProjOwnership.avl
ProjOwnership.shp
ProjPoly.avl
ProjPoly.shp
ProjRoads.avl
ProjRoads.shp
ProjSheets.avl
ProjSheets.shp

examples

GISstate

DOQ

quad100C

quads

q1c

SGID

qd024

q1111

st024

st100

st500

GPS

Proj.ddf

Corrected

Uncorrected

Maps

ProjMaps.pdf

examples

Photos

AMR045912

Realty

ProjOwnership.xls

example